# SCIENCE AND RELIGION

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"Search while thou wilt, and let thy Reason go,
To ransome Truth, even to th' Abyss below;
Rally the scattered Causes; and that line,
Which Nature twists, be able to untwine.
It is thy Maker's will, for unto none
But unto Reason can He e'er be known.

Teach my indeavours so Thy works to read,
That learning them in Thee, I may proceed.
Give thou my Reason that instructive flight,
Whose weary wings may on Thy hands still light.
Teach me to soar aloft, yet ever so
When neer the Sun, to stoop again below.
Thus shall my humble Feathers safely hover,
And, though near Earth, more than the Heavens discover.
And then at last, when homeward I shall drive,
Rich with the Spoils of Nature, to my Hive,
There will I sit like that industrious Flie,
Buzzing Thy praises, which shall never die,
Till Death abrupts them, and succeeding Glory
Bid me go on in a more lasting story."

*Religio Medici*

## *Introduction*

A YEAR or so ago, at a dinner party, the discursive talk on things in general which I shared with my neighbours suddenly passed into a more serious note and spoke of the controversy between science and religion. One of my neighbours, a charming young lady and a brilliant student at one of our older universities, remarked in all seriousness that she could not understand how a scientific man could also be a religious man. I rejoined that I as a doctor of medicine and in some degree a scientific man, by very reason of my scientific training could not be or wish to be other than a religious man. I had that talk in mind when later I received a suggestion that there was room for a book on the relations of religion and science. I thought that if I could write such a book there would be some advantage, first to myself, for there is no better means of clarifying one's vague and wandering thoughts than an attempt to express them in the current coin of the written word. Further, an attempt of this order may well be helpful, or at least stimulating to others who may care to read what someone else thinks. I confess, I have found the task harder than I anticipated. Still, in attempting it, I have tried frankly and impartially to face facts, to examine what I feel

justified or compelled to believe about them, and to show the grounds which I regard as adequate for my conclusions.

Perhaps it may be asked why should a doctor, a medical practitioner, attempt this task? The reader may well ask this question. I think there is a sufficient answer. A medieval proverb reads: *ubi tres medici, duo athei*—"where three doctors meet there are at least two sceptics." If we take that word sceptic in its original and primary meaning, which was "thoughtful" or "enquiring", then I agree most heartily, and indeed I will claim that where three doctors meet there will be three sceptics, for there is no form of work that breeds a keener spirit of enquiry than the practice of medicine. Hence, a doctor may claim that in some sense he is in a peculiarly happy position to discuss the relations between science and religion. By reason of his training and daily work he has a foot in each camp. He is trained by scientific men in scientific methods, and throughout his career he has constant association with scientific colleagues, in private, in hospitals, and in the friendly intercourse of medical societies. Thus a scientific habit of mind is established and sustained. On the other hand, his active work is with living men and women and children—that is with his fellow human beings—and this, too, at times and in circumstances when secrecy is banished and habits of life and mind are fully revealed. In some

sense the doctor of to-day acts as father confessor to many of his patients. They will tell him what they will tell to no one else, not even to their own "spiritual pastors and masters." He sees their reactions under physical stresses and disabilities, and can judge in some measure the influence of their mental and spiritual make-up in the control of these reactions—an experience often illuminating and of high value. In the final resort there is no surer test of the worth of a thing or of a practice or of an idea than a demonstration showing how it acts or what it does. Of "absolutes" we doctors know nothing. To the theologian who would compel our belief in an "absolute" on the authority of himself, or of his community, or of his church, we are deaf; but if his teaching proves in practice, in the lives of those who accept his dicta, to be of value, then we hearken gladly. To the scientific man who promulgates an hypothesis of advance in any direction we bend no knee of submission, however great may be his authority. His hypothesis must be tried out, and if it can or does in any way affect common everyday life, it must be tried out in the field of experience. If it be found to work, then, and only then, will we admit its validity and promote it to the dignity of a theory. There it will stand so long as it works, or until something which works better displaces it.

Such an attitude is held by some who claim to

be superior persons in scorn as mere utilitarianism, but it is in the end the final test. It is the test of experience. That hackneyed old proverb—the proof of the pudding is in the eating—is the true summary of the final test of every aspect of life, and since both science and religion are aspects of life as we know it or can discover it, that proof of value is a *sine quâ non.*

I wish to express my indebtedness to the Rev. Raymond V. Holt, B.Litt., of Manchester College, Oxford, for the suggestion that led me to write this book, and to my colleague, Dr. C. O. Hawthorne, for his kindness in sparing time to read the manuscript and for his criticisms.

N. B. H.

LONDON,
*January* 1935.

# I. SIGNS OF THE TIMES

# I

## *Signs of the Times*

> " When it is evening, ye say, It will be fair weather: for the sky is red. And in the morning, It will be foul weather to-day: for the sky is red and lowring. . . . Ye can discern the face of the sky; but can ye not discern the signs of the times? "
>
> MATTHEW xvi. 2.

MEN, or some men, have always been discerners of the signs of the times. Folk-lore is evidence of this. Our common proverbs, also, are evidence, and the conflicts between many of these proverbs show how difficult the seers have found it to decipher the signs which nature offers to the observer. Curiosity is the mainspring of the desire to know the meaning of signs. Not all men are gifted with the curiosity which leads to the practice of observation. Some have it in an acute degree: for example, the wiseacres of the village community, the magicians and witch-doctors of early times, the Normas of the Fitful Heads; the same is true of the men of science of yesterday and to-day. Galileo, Harvey, and Lister were men who had enquiring or searching minds. Like the child who investigates the interior of his father's watch, these men, and multitudes besides, wanted to know how the wheels go round. But the

majority of us are quite content if we find the wheels do go round, or go round at least with sufficient regularity for us to be able to guide our lives by these time indicators. The men with curious minds are of those who lead the way in the search for the meaning of things, both the things of material existence and those which are no less real though not directly connected with material existence.

It is commonly suggested that there is opposition between that which is material and that which is not material; between that which is "scientific" or has to do with the material things of life, and that which is "religious" and has to do with the things that are not material. To my mind there is no real basis for this suggestion. There is and can be no conflict between true science and true religion for the two are indissolubly linked. In fact, they are two slightly different aspects of the same thing or of the same problem. Or put otherwise the two have a common origin, and whereas one ceases at a certain point the other carries on the search still further.

Science is first the observation of phenomena and, secondly, a reasoned synthesis or linking together of the observed phenomena. The proof of the accuracy of these observations and of the conclusions based on them is tested when the conclusions are applied practically to the everyday affairs of life. If in such a test the result proves satisfactory, we assume, and

are entitled to assume, that these deductions are true. That is the one test of science.

Science proceeds still further. It proceeds to classify conclusions, observations, and deductions. It notes how they are related to time and space and to each other. It finds that with many of them there is a striking regularity. So certain is the recurrence of these phenomena that it is recognized as the rule, and hence comes the promulgation of a "law." This term "law", as used in science, has been the cause of much stumbling amongst laymen. When one who is not versed in these matters hears the word law he is apt to connote the term with other applications of the same word, e.g. the law of the land. The two usages are not alike, indeed, they differ materially. The law of the land is in a sense an arbitrary convention, an enactment. It is a convention to which the citizens of the country agree, and, for the most part, do obey. It is a matter of arrangement between ourselves, and may be varied from time to time. There is nothing necessary about it. So long as we agree, or the most of us agree, that it is a good law, we obey it. If we consider the law bad we seek to get it repealed, or if we are of the contentious sort, we disobey it and risk the prescribed penalties. A law of science is quite another proposition. It is a statement based upon a series of facts to which there is no known exception. The law holds good so long as the facts upon which that

statement is based remain true in our experience. The discovery of new facts may abrogate that law, modify it, or develop it. Boyle's law of the diffusion of gases is not a force that regulates the movement or diffusion of gases, but merely a statement of the fashion in which gases are known to diffuse. It is not like the law of the land regarding the movements of motor-cars. The legislature lays down the law for the motorist. But with the gases of our atmosphere, or any gases that we produce, we find that there is a definite rule of behaviour, and it is this which we call Boyle's law. No one has found cause to challenge the validity of that law, for experience shows it to be uniform and without exception. Boyle's law, just as all other laws of science, holds good for us as a piece of current coin so long as its genuineness is not challenged, and challenged successfully.

It follows from this that while science is marked by law and order, it is free and ready to accept new truths, and modify opinions when the facts call for these. In this respect science is essentially fluid. There are continual increases of knowledge of facts. With such increase there is a possible reaction upon our current ideas. Changes may be slow, but they are cumulative. At times there is such a convergence of new ideas upon some branch of science that there is a revolution of thought. To some minds, held fast in the grip of former ideas, the changes may seem

catastrophic. Hence the conflict—between the established and the growing, between dogmatic religion and science.

The scientific man, whose mind is filled with the compelling wonder and glory of his new idea, is sometimes ruthless in his application of it. He is like the iconoclast who destroys the treasured and venerated images of antiquity. That these images enshrine the loveliest imagery of the human mind makes no appeal to him. He thinks that man is in bondage to this unsubstantial phantasy, so he would away with it in the interest of progress and truth. The scientific man sometimes forgets that adaptation is one of the profoundest laws of natural science and so also of human nature, and that by applying this law to the promulgation of his new idea in relation to old established ideas he could more speedily and surely win his way.

The fault of the religious man in regard to scientific ideas has been due for the most part to his too faithful adhesion to antiquated and discarded scientific theories or attempts at scientific explanations of natural phenomena. The scientific men of past days propounded some hypothesis in explanation of things seen, and they did this with such cogency and seeming authority that these hypotheses were accepted by the men of that time, both laymen and cleric, as something more than hypotheses, more even than theories; they were admitted into the realm of final

truth, and as such were woven into the fabric of man's dearest thoughts and aspirations, into his ideas of life and of God. With such a linkage, these ideas—which were no more than hypotheses or speculations, sometimes bold, sometimes naïve—have seemed to those who thus accepted them to be foundation stones in the great fabric of religion, and so much a part of the basis of religious belief that the loss of them would mean the loss of religion itself. These pseudo-scientific ideas or discarded hypotheses have become veritable idols, loved and cherished by many. And the people do not like to have their idols broken. Even when these ideas were regarded with less than veneration there was the effect of habit to be taken into consideration. That which is familiar is comfortable. New values are always disturbing. We cling to the old and are likely to reject the new when first propounded. The propounders of the new must be prepared to find that their discoveries are regarded askance. It is so even in these days when most have learned that there is no finality in knowledge, and that there must of necessity be reconsideration of thoughts, ideas and opinions as new discoveries are made. If this be so to-day how much more was it in the days of our forefathers when the dissemination of new knowledge was so slow, when the possibility of discussion was so limited, and when conflict with established authority often meant personal risk. To-day it is

easy to be an iconoclast, indeed the ruthless critic of what is established will find supporters who appear to be animated more by the prospect of a sporting fight than by a genuine anxiety to discover the truth. It is easy to be or to pose as an iconoclast to-day, to attack the conventions of art, of science, of morality, of religion, or of any side of human activity that possesses conventions: yesterday it was not easy, indeed it was dangerous. Habits long established are not easily shed, and for the most part people of all sorts cling to established beliefs rather than surrender them to newer ideas. That the religious man should share the common fault of humanity in this regard is not a matter for wonder or for blame.

Sometimes indeed the scientific men of the day have taken up the same or a similar attitude regarding the scientific attainments of a former time. There were carried on from generation to generation the stores of observations and of deductions based thereon; and these, when bound up into a seemingly co-ordinate whole by some master mind of the time, have carried such a weight of authority that they have become compelling in their influence upon generation after generation. Either the dominance of the master mind or the subservient spirit of the generality of his successors has changed the leadership of the master to a dictatorship. The man whose inquisitiveness led to the discovery of new truths

has become so outstanding in the minds of his successors that their own inquisitiveness has been smothered and reduced to tameness. An example that should have stimulated research or enquiry and promoted a healthy temper of scientific scepticism has swaddled thought in iron bands. Such is the straitness of authority. Such was the effect of the immense labours of the celebrated Galen upon many succeeding generations of doctors. Galen was a great physician. He was born in Pergamus, A.D. 131, and is said to have died in Rome about A.D. 200. His parents were exceptionally able people. He travelled widely, then settled in Rome, where his success as a doctor gained him the popular titles of *Paradoxologus* and *Paradoxopoeus*—wonder-speaker and wonder-worker. He is said to have composed nearly 500 treatises on medicine, logic, ethics, and grammar. He was the chief of ancient anatomists, indeed he may be held to have created anatomy. He had such a clear mind that he was able to describe his observations so that they were intelligible to others. His work (which included that of others) became a veritable "Bible" to the medical world for generations. There is an amusing story of medieval times which illustrates the power of authority. A budding anatomist strolling into a deserted graveyard picked up a human breast bone and recognized it as different from the bone described by Galen (which was that of a sheep). With the enthusiasm of youth he carried

his treasure to his medical school. His teachers received his demonstration of Galen's error with such indignation that they forthwith "cast him out of the synagogue."

In the dark age of Europe Galen's work passed into the keeping of the Arabians, and it was recovered from them by Europe in the Renaissance. It had changed but little through the centuries. Then the spirit of enquiry was reawakened. Vesalius, in 1514, shook old authority by making fresh dissections of the human body. For this outrage the Papal Inquisition banished him to Palestine; on his journey he died of exposure and in destitution.

A century later Harvey showed that both dissection and experiment were necessary to unravel the secrets of the body. He wrote: "Wise men must learn anatomy, not from the decrees of philosophers, but from the fabric of nature herself."

There have been many such conflicts between accepted scientific belief, the orthodoxy of the time, and the newer, and, as we know now, the more truly scientific theories of later times. There is witness of this in my own field of work. Remember the mixed reception of Harvey's discovery of the circulation of the blood, or of Lister's discovery of the origin of infection and gangrene of surgical wounds, and of the principles of antiseptic surgery.

We are accustomed to label those who adhere to

their familiar conventions and oppose the progress of enquiry, of the collection of information and of knowledge as obscurants or obscurantists. The word has become almost a term of opprobrium, to be applied in particular to certain types of religious people, and, indeed, by some persons to religious people of all types. But the religiously minded have no monopoly of obscurantists. They are to be found in every walk of life, in every grade of society, in every nation, and in every age. It is amusing to recall the heated controversies that were aroused in the days of our youth over matters that are now held commonplace. We have only to turn to the pages of the back numbers of *Punch* to learn what was attractive and what rejected in near-by days. We may remember the bitter hostility with which the introduction of railways was opposed, and the fantastic forebodings of evil that were held by many intelligent persons. Equally the introduction of generalized schemes of illumination were opposed. Yet what has advanced our comfort in life, especially in these northerly altitudes, more than facilities for travel, and above all light and yet more light! How vehement was the hostility to the introduction of the harmless and useful bicycle. In nearer years the cyclists themselves were divided into hostile camps when the new geared "safety" threatened the extinction of the old "ordinary" or penny-farthing monster. It is laughable to recall the opposition

that attended Dr. Dunlop's invention of the pneumatic tyre. I remember a "scientific" article by an able man who proved conclusively (to himself) that the rider must be jarred worse in riding a pneumatic-tyred cycle than one with a solid tyre, for he recorded he had observed that whereas the pneumatic bounced over a potato lying in the road the solid cut through it without a jar. Yet these two inventions, the geared safety bicycle and the pneumatic tyre, made possible the motor-car which has almost abolished the old time isolation of communities. Every one can recall similar occurrences within their own knowledge and experience.

The truth is that people, ourselves included, do not like to have new things thrust upon us, we like better what is than what may be. Consciously or unconsciously we exalt what is into that which shall be. We continually re-echo those strange words of the Doxology—"As it was in the beginning is now and ever shall be." There is good reason for this attitude. It is natural and defensible. The new is always disturbing. The patch of new cloth in the old garment may be destructive. The readjustments required by the admission of a new personality or of a new idea require an agility of mind that is not given to all. We prefer to work slowly and surely.

Further, there is an inherent sense of resistance to the novel which is a defensive mechanism developed from past experience. Not all novelties are good.

When we recall the hostility with which some epoch-making discovery has been received we must not assume that there was malevolence in the minds of those who opposed the new ideas. Many of them were men of wide experience, and from that experience they had learned to suspect before they trusted. When they were young men they had found their trust betrayed by novelties; through years they had tried them, tested them and found them wanting. In their turn the still younger men tried the newest of ideas and this time found them good, and their willingness to accept the new has been accounted to them for righteousness. They were happy in their generation to come into contact with that which was not only new but true.

The strides that have been made in recent times by mankind through the mastery of the forces and processes of nature have been of immense significance. We commonly speak of these advances as the discoveries of science. So they are. To speak more plainly they are the effect of knowing how things work. The steam engine was always a possibility. Millions have seen water boiled into steam and watched the pleasant bubbling of the kettle. But no one thought of applying the expansive and motive force of steam until Watt conducted this steam into the cylinder of his engine, and Stevenson geared the piston to the wheels. So also with regard to numberless other discoveries. Man

has found out how to make use of existing means at his disposal to gain some desirable end. The means were there always waiting, as it were, for some man of vision to perceive them and utilize them.

Primordial man quadrupled the force of his fisticuff with a stone hammer; he out-distanced his swiftest pace with a flying stone; he made a sun in the darkest night with a glowing fire; he turned the savage dog-wolf into the faithful guardian of his hearth. Modern man has made the thin air support his swiftest ships; he has separated the air into its constituent elements to make manure for his crops; he has made the ether shimmer to the vibrations of his voice until the sound of one man's tongue can be heard by millions. Were there ever before such marvels? But these latest achievements are no more marvellous than were those of primitive man. Indeed, from some points of view, the discoveries of our ancestors were the more marvellous, for beginnings are always the most surprising and startling. Just as wonderful as the first faltering, unsteady steps of the year-old infant which performs a feat of balancing that in the eyes of the mother (and also in those of the physiologist) exceeds in its wonder the habitual unconscious action of the full-grown man in his bipedal progression.

Wonderful have been the discoveries of what uses may be made of the forces inherent in the natural

order of things. Wonderful have been the effects of the application of these discoveries to man's daily life. Despite all the denigration of modern civilization by those who enjoy an habitual pessimism there can be no manner of doubt that each of these discoveries has helped to make life more spacious, more generous, and more worth living.

Primitive man lived in perpetual fear of beast and bird and snake. When he had mastered these, in whole or in part, he was still in constant fear of famine and pestilence. Even when he had mastered these, or brought some sort of order out of chaos, there was the deeper and more haunting fear of the unknown, the terror that walketh in darkness. Of all the horrors of savagery the worst, so far as we can judge by the observations of men such as Albert Schweitzer, who have lived close to savages, is the fear of the unknown, the fear that breeds witchcraft and superstitions, that turn the strength of the strong into water. Man masters this fear but slowly. He does not begin to master it until he has made the greatest of all discoveries, that there is an order in nature, an amazing order, behind all the seeming chaos and confusion.

What effect have these discoveries of the laws of nature—that is, the growth of scientific knowledge—had upon man's inmost thoughts, upon his religion? The answer appears to me to be somewhat in the nature of a paradox. The more nearly these dis-

coveries have affected his daily material life, the gaining of his daily bread, the less have they affected his inmost thoughts. The less nearly these discoveries have affected his daily material life the more have they affected his inmost thoughts.

In the days in which we live there have been, as all will agree, astonishing scientific discoveries which have materially affected our daily life. Means of communication have been advanced so highly that any man in his person, his goods, or his wishes or ideas, can be effectively transported or transmitted to the ends of the earth. Of all our material discoveries there is none greater than this, for it affects all others. Despite the immensity of the effect of the growth of means of communication upon the provision of the necessities and amenities of life, it is doubtful if there has been any corresponding effect either directly or indirectly upon man's inmost thoughts and on his religion. They may, and do, affect some of the ceremonial practices of religion. Ease of travel fosters the week-end habit and tends to diminish regularity in attendance at places of worship. The wireless religious service brings some echo of vocal religious aspiration to millions who never heard it before. But no one will contend that the discovery of wireless radiations, or any other similar achievement, either enhances or diminishes religious thought; except in so far as man learns that there is order around him from the regularity of

the responses which he obtains from his application of the power which these gains bring to him.

But it is far otherwise with those discoveries that have been made of the working of nature and of the universe about us which have no relation to our material lives. Discoveries of an order that do not enable us to get one slice of bread more from the soil, nor make a sweeter bread, nor help to transport bread which is in excess in one part of the world to another where there is a scarcity. These discoveries do none of these things for us, yet they have influenced our inmost thoughts, our religion, to the depths. Indeed it may be said with truth that these discoveries have revolutionized the expression of religion and to some extent religion itself.

Within historic times there have been three epoch-making events of the order to which reference is here made:

1. The Copernican scheme of the solar system.
2. The Darwinian theory of evolution.
3. The recent unveiling of the extent and majesty of the universe.

In 1543 Copernicus published his heliocentric planetary system, and since that date there has been a change in values that is hard for us to appreciate.

For centuries man had learned to believe the plain evidence of his sight, and then, forsooth, he was told

bluntly that the evidence of his eyes could not be believed. From his youth up he had seen the sun rise at dawn and set at eve. He has seen the firmament far above his head reaching everywhere to the bounds of the earth. He had taught his own observations to his children, and they saw with their own eyes that what he told them was true! Enriched with the delicious fantasies of folk-lore, such as have been collected in the works of Sir James Frazer, we learn how greatly man's beliefs and religion were influenced by his observations of the natural phenomena daily uncovered to his eyes, and by his cogitations thereon. The earth appeared to him to be the centre of all things, and man to be the centre of the earth, and he himself the one man that mattered. Every man is an egotist, the earth and the universe are round about the eternal "I." Indeed it is contended by some that except for this "I" there is nothing else, for that which appears to be about us exists only in the consciousness of the "I."

The severity of the shock received by the medieval world by the work of Copernicus and Galileo can best be measured by reading the judgment of the Papal Inquisition. The terms of this judgment are so explicit that there can be no doubt that its authors fully understood the meaning of the new astronomy. Thrice they set out its principles in the plainest language, and thrice they declare it false or absurd.

Here is the main part of the judgment. It is worth reading.

"Whereas you, Galileo, son of the late Vincenzio Galilei, of Florence, aged 70 years, were denounced in 1615, to this Holy Office, for holding as true a false doctrine taught by many, namely, that the sun is immovable in the centre of the world, and that the earth moves, and also with a diurnal motion; also, . . . following the hypothesis of Copernicus, you include several propositions contrary to the true sense and authority of the Holy Scriptures; therefore . . . by the desire of his Holiness and of the Most Eminent Lords Cardinals of this supreme and universal Inquisition, the two propositions of the stability of the sun, and the motion of the earth, were qualified by the Theological Qualifiers as follows:

"1. The proposition that the sun is in the centre of the world and immovable from its place is absurd, philosophically false, and formally heretical; because it is expressly contrary to the Holy Scriptures.

"2. The proposition that the earth is not the centre of the world, nor immovable, but that it moves, and also with a diurnal action, is also absurd, philosophically false, and, theologically considered, at least erroneous in faith."

"Invoking, therefore, the most holy name of our Lord Jesus Christ, and of His Most Glorious Virgin Mother, Mary, We pronounce this Our final sentence, . . . We pronounce, judge, and declare, that you, the said Galileo, by reason of these things which have

been detailed in the course of this writing, and which as above, you have confessed, have rendered yourself vehemently suspected by this Holy Office of heresy, that is of having believed and held the doctrine (which is false and contrary to the Holy Scriptures), that the sun is in the centre of the world, and that it does not move from east to west, and that the earth does move, and is not the centre of the world; also that an opinion can be held and supported as probable, after it has been declared and finally decreed contrary to the Holy Scripture, and, consequently, that you have incurred all the censures and penalties enjoined and promulgated in the sacred canons and other general and particular constitutions against delinquents of this description. From which it is Our pleasure that you be absolved, provided that with a sincere heart and unfeigned faith, in Our presence, you abjure, curse, and detest, the said errors and heresies, and every other error and heresy, contrary to the Catholic and Apostolic Church of Rome. . . . We decree that the book *Dialogues of Galileo Galilei* be prohibited by a public edict, and We condemn you to the formal prison of this Holy Office for a period determinable at Our Pleasure; and by way of salutary penance, We order you during the next three years to recite once a week, the seven penitential psalms, reserving to Ourselves the power of moderating, commuting, or taking off, the whole or part of the said punishment or penance."

Galileo signed his abjuration of his "detestable errors and heresies," in the Convent of Minerva, June 22, 1633.

The world goes on moving!

The effect made upon public opinion in the middle of the last century by the enunciation of the Darwinian theory of evolution, and the resulting controversies was even more dramatic. Copernican astronomy took generations to filter through into the general mind. Evolution was disclosed in a generation. In one year everyone had some version of it. It came close home to ourselves. Our *amour propre* was touched in its most tender spot. In a sense this experience prepared us to receive the unveiling of the vastness of the universe with equanimity. Small, insignificant we may be, measured in that scale; yet at least there is something about us, something in us, that remains untouched and undiminished in value.

"A man's a man for a' that!"

The new learning has proved a corrective of that cold cast-iron materialism and that harsh determinism in philosophy that had been for a time held to be the quintessence of the spirit of pure science. We found in truth that this soulless school was as lopsided in its expression of the meaning of life as the crude superstitions of the chief of the Voodoo worshippers. Religion and science which had been thought to be by their very nature antagonists and antipathetic may possibly be found comrades in arms. Gallant allies!

Surely the wheel has turned full circle. The seemingly impossible has been achieved. The

ancient prophesy which runs that "the wolf also shall dwell with the lamb, and the leopard shall lie down with the kid," has come true! The ghosts of the Cardinals of the Holy Inquisition will surely repent and recommend Galileo for the reception of an honorary degree, Doctor of Laws, Emeritus; and Bishop Wilberforce, the champion of Genesis, and T. H. Huxley, the militant apostle of Darwinism, will shake hands in token of a reconciliation which recognizes that pictures of truth—necessarily partial pictures—are painted on opposite sides of the shield.

I close this chapter with a quotation from a remarkable book. The passage is pregnant with meaning:

> "There can never be any real opposition between religion and science; for the one is the complement of the other. Every serious and reflective person realizes, I think, that the religious element in his nature must be recognized and cultivated if all the powers of the human soul are to act together in perfect balance and harmony. And indeed it was not by any accident that the greatest thinkers of all ages were also deeply religious souls, even though they made no public show of their religious feelings. It is from the co-operation of the understanding with the will that the finest fruit of philosophy has arisen, namely, the ethical fruit. Science enhances the moral values of life, because it furthers a love of truth and reverence—love of truth displaying itself in the constant endeavour to arrive at more exact knowledge of the world of mind and matter around us, and reverence, because

every advance in knowledge brings us face to face with the mystery of our own being."

Unless the reader recognizes the source of this quotation he will be inclined to think that it was written by some scholarly divine, or at least a professor in a Divinity school. Such a surmise will be wide of the mark. It is an extract from a book entitled *Where is Science Going?*[1] written by Professor Max Planck of Berlin. Of his work as a scientist Jeans writes:

"The nineteenth century . . . lasted just long enough for science to discover that certain phenomena, radiation and gravitation in particular, defied all attempts at a purely mechanical explanation. . . . In the closing months of the century, Professor Max Planck of Berlin brought forward a tentative explanation of certain phenomena of radiation which had so far completely defied interpretation. Not only was his explanation non-mechanical in its nature; it seemed impossible to connect it up with any mechanical line of thought. Largely for this, it was criticized, attacked and even ridiculed. But it proved brilliantly successful, and ultimately developed into the modern 'quantum theory,' which forms one of the dominating principles of modern physics. Also, although this was not apparent at the time, it marked the end of the mechanical age in science, and the opening of a new era."

[1] London, George Allen and Unwin Ltd.

# II. GOD

## II

### *God*

God is the focus of all religious thought. Belief in God is the one essential common denominator of all religions. Communion with God is the one satisfying religious experience of the soul of man.

The first and the second of these statements will be agreed as statements of fact by all, whether or no they accept the belief implied in the statements. To deny the truth of these two statements would be to deny all history. There can be no more certain facts in human history than these.

The importance of these two statements as an expression of the human mind lies in the third statement—Communion with God is the one satisfying religious experience of the soul of man. This experience by those who have passed through it and are gifted with the power of expressing their thoughts and feelings, is placed on the highest level of value. Indeed it is asserted to be the one and only completely satisfying experience in life; to transcend all success in life, all achievement, all possessions, all human affection and love; to be, in short, so satisfying that no loss, no catastrophy, no bereavement, no persecution, no evil treatment however barbarous can shake the stability of conviction

of even the frailest man or woman who has once enjoyed the sense of the mystical or heavenly vision.

Testimony to such experience is impressive. It demands attention and it has received it, not least in these days when analysis, physical and psychological, is ruthless, and yet applauded. Examination of such an experience is important, but much more important is an examination of the basis of the experience. Belief in God. Is that belief to be founded upon the acceptance of some authority? Is it to be and to remain an emotional reaction? Is it possible to claim that it is based upon known facts; founded upon such facts that when these are submitted to the judgment of an unbiassed person (if such can ever be found) he will agree or allow that the existence of God is not only possible, but probable, and even as certain as any human knowledge can be? That is the question.

First to define our terms so far as we can. When we use the word "God" what exactly do we mean? Not so much what meaning each of us as individuals gives to the word, but rather what is the common sense conveyed by the term so far as we have learned its use in the past, and in the contemporary life to-day. On this basis we may safely take two definitions, or more correctly, statements, as sufficient explanation of the meaning attaching to the term: 1. That of Jesus of Nazareth: "Our Father." 2. That of Lord Balfour, in his Gifford Lectures of

1914: "When I speak of God I mean a God whom man can love, a God to whom men can pray, who takes sides, who has purposes and preferences, whose attributes, however conceived, leave unimpaired the possibility of a personal relation between Himself and those whom He has created." Of the two, the former is preferable. It is the simpler. It covers all the points in the second definition, and, perhaps, covers much more than those points. We may safely agree that there have been generations of human beings through the ages who have believed thus in God to a greater or lesser degree. Some have believed with the fullness and certainty of Jesus, some have believed but dimly and confusedly, scarcely daring to dare to conceive so much.

The realization and assertion by Jesus of the Fatherhood of God was surely the greatness of Jesus. He put into words what others had dimly felt. What he said aloud brought an instant response from others who in effect rejoined: Yes, that is so! That is what I believe and feel. God is my father. And those individuals felt it so right that they felt they must always have believed it. A seer saw. A genius gave expression to his insight. A world of human hearts has revered his name ever since. Can we wonder?

To-day there is a fashion abroad amongst many writers not so much to deny God as to avoid God. There are few who care to acknowledge a vulgar

atheism. (The ruling spirits of Russia must be omitted from this consideration.) Rather there seems to be a fashion amongst cultured writers to search for and use one or other of a variety of terms all of which imply disbelief in the essential feature of fatherhood, i.e. personality. Such expressions are used as: nature, force, energy, life force, vital spark, the universal substance, the one principle, the spirit of the universe, first cause, *fons et origo*, *primum mobile*, primordial urge, destiny, the ultimate reality, *causa immanens*, and so forth. There are shades of assertion and of negation in these terms. Some are far removed from and some come nearer to the idea of God. But none of them can be accepted as expressing even remotely the idea that Jesus had. It seems that the idea behind all these terms is a denial of personality, and an assertion that the spirit of the universe is impersonal. It is equivalent to the assertion : There is no God. For myself I can only reject any such supposition of an impersonal cause behind life. Not only does it appear to be wholly insufficient, but to be irrational, contrary to human reason and experience. To my mind it is rational, and the only rational mental attitude to believe in God and in a personal God.

The importance of the belief can scarcely be measured. It is hard to suggest words that would indicate how great it is. We may best gain some hint of its importance by recalling a dictum of

Ernst Haeckel, who, in his *Riddle of the Universe*, writes: "God, freedom, and immortality are the three great buttresses of superstition which science must make it her business to destroy." Strange that a scientific man should have so far forgotten his proper work as to assert that it was the business of science to do any such thing. Perhaps he had in mind the cramping effects upon mind and thought produced by centuries of inductive theology and scholasticism, which during the Middle Ages had smothered life with authoritative dogma.

In that he would be right. Scholasticism fogged the eye of the mind, dimmed it by a smoke screen of innumerable particles of inconsiderable matter. Science from the Renaissance has been busy in smoke abatement, it has let the light in and made nature and man intelligible. It has described both in terms that he who runs may read. But science has never, in its proper role, sought to say why these things should be. It has left it to religion to interpret the spirit informing them. Haeckel is asking science to do the impossible. Religion may change in form. It may wax and wane. It is never extinguished. The French revolutionaries averred that they had made a clean sweep of God. But the revolutionaries themselves showed the existence of religious sentiment in a passion for liberty, one of the chief effects of religion is its insistence on the dignity of man, and this freedom is one of the

trinity of Haeckel's alleged superstitions. Haeckel's dictum recalls to mind a terse saying:

" If you believe less than I do—you're an atheist.
If you believe more than I do—you're superstitious! "

The Russian revolutionaries have abolished God, liberty, and immortality. But if we may believe the story of a Russian-American, Maurice Hindus, in his book called *Red Bread*, and accept that as a fair statement of present-day conditions in Russia, then there is a strong, new and simple religious faith growing up in that country that may annul and even destroy the efforts of the Godless campaign.

Belief may have three foundations: authority, emotion, reason. The first of these, authority, is the primitive basis of belief for the individual. Each of us has experienced it and accepted it. We accepted the sayings of our parents, teachers, or spiritual pastors and masters. It is natural and inevitable that this should be so. They know. They have experience. We as children neither know nor have experience. We therefore accept their knowledge and experience and adopt it unconsciously as our own. The traditions of the fathers are handed down. The strength of the tradition is immense. It holds its place in our minds until some new knowledge arising out of some new fact or experience challenges it. Some fact or some man cries out : Thus saith the Lord!

It is easy to understand how an event comes with the force of inspiration. An individual broods over some problem for days and years. It fills his waking thoughts. It becomes an obsession. It is more than meat and drink. It is ever present in his unconscious mind. In his laboratory, mental or physical, he has carried through innumerable investigations and questionings. Suddenly, as by a voice speaking in his inner mind, the all-embracing idea, the idea that covers all his searchings and questionings, flashes into consciousness. The earth that was without form and void takes shape and life. His mind is filled with the new consciousness. He is fired with the new realization, so a prophet arises with the cry: Thus saith the Lord! His spirit speaks to other spirits. Theirs are kindled at the same fire. A new era is come, a new authority is accepted, a new tradition is begun.

Authority in its essence is not the arbitrary dictum of some external force. It is the crystalization of the experience of some person or generation. It is the enunciation of the reasoned thought of human beings. In its origin it was reasonable and logical. It was based upon such knowledge as was possessed at the time. It was true for their existing generation. A tradition thus formed, if widely accepted and of long duration, has a strong appeal to our minds. It has all the sanctity of custom, the venerableness of hoary age. We are essentially lazy. We like to

repose in our beliefs. We resent the compulsion to examine our treasures critically. It is sacrilege to think of revaluing them. Even in these days of free enquiry, when it is more popular to pose as a destructive critic than an admirer of the established, there are millions fully content with authority. If it were not so could the Roman Catholic Church exist? Bunyan thought it was a dying giant, but it shows no signs of death. It abates no jot of its claim to infallibility. Cardinal Bourne, preaching in St. Mary's Roman Catholic Cathedral in Edinburgh, in 1932, said, according to the report in *The Times*:

> ". . . the New Testament was one long testimony to a definite teaching of many precise doctrines. Those sacred books were in the fullest sense dogmatic; they presented truth for acceptance under grievous consequences of non-acceptance. There was no mere enunciation of opinions to be weighed, accepted, or rejected. Everywhere there was the note of authority, an unfaltering claim of a right to teach, and the assertion of a duty on the part of the hearers to accept that teaching. And, along with that authority to teach, the assertion of a power to exclude from the Christian fellowship those who contravened the teaching of the Church, whether in matters of doctrine or in the conduct of life. Power to receive into communion, power equally to thrust out of communion, were correlative exercises of authority; and they were unhesitatingly exercised in and from Apostolic times.
>
> "The Church had felt herself in every age filled with the authority of her Founder to teach in His name

definite truths, the acceptance of which was a condition for admission within her membership. She drew up creeds containing in ever closer and more stringent terms the consequences of the revelation of God given to us by Our Lord, and insisted, under pain of excommunication, on the formal acceptance of those consequences by all who wished to remain her members."

Such pronouncements may be expected from the Papal Church; but what are we to think when beneficed clergy of the Church of England, the church described in the University "Bidding Prayer" as "that pure and reformed part of Christ's Holy Catholic Church as by law established in this realm," adopt the same attitude. In a recent statement published in the lay press there was the following:

". . . We reject all theories concerning Holy Scripture which detract from its inspiration and authority, and we declare that the Catholic Church alone has the right and power authoritatively to interpret it. We proclaim that the Catholic religion is divinely revealed and essentially a religion of authority. We hold it is the one authentic Christian religion."

Authority dies hard, if it ever dies. But can we for a moment accept authority that is no more than the dictum of men of like passions as ourselves? Men with no greater knowledge: men whose sainted leaders have been proved conclusively wrong when they denied the truth of discovery in the world of science and nature.

For these men punished Galileo the discoverer,

and branded his work as "philosophically false, and formally heretical; because it is expressly contrary to Holy Scripture—and contrary to the Catholic and Apostolic Church of Rome." As men we may forgive them their error. Who is there amongst us who has not erred by credulity or incredulity? But as claimants of a unique dispensation of the divine spirit which was to lead them into all truth their error is damning.

One of the shrewdest thrusts at the over-weaning use of authority is to be found in a saying of Leonardo da Vinci: "The man who in an argument adduces authority is not using his intellect but only his memory."

Emotion, the second foundation of belief, is one of the subtlest order. If it be second in time in its influence upon our minds, it is by no means second in weight of influence. Yet it is closely allied to and not unaffected by authority. It is authority in its less blatant and more seductive form. It is the effect of all those points of contact which are inevitable from infancy. It is less vehement than stark naked authority, but more compelling in its clinging silken thraldom. Mother, father, home, sibs, friends, place, position, clothes, toys, school, masters, colleagues, games, speech, sayings, incidents, accidents, gifts, benefactions, sights, sounds, smells, birds, beasts, trees, and scenes, all these, and innumerable others touch us at every point in our

lives and make us what we are. There is constant action and reaction. The sum total of the residual effect is our emotional content, our subconscious mind. Emotion makes us love some things and hate others. It makes us see beauty in one and ugliness in another. And, if we can so far get outside ourselves, we are hard put to it to say why this should be so. It is this that accounts for the survival of many an exploded tradition, or senseless custom. It is this that retains modernists as sincere communicants of some sacerdotal church. Habit and love are the emotional content that make their anomalous position seem normal to them. It acts as though it were the soul of the whole, the universal beauty, beatitude itself, the vision of wisdom. Though to those who are strangers to the environment there is no attraction and no appeal. The language of emotion that speaks from the heart of one man carries no august sense, his words fall short and are cold, they are vain to those who do not dwell in the same thought. What must the stern presbyters have thought when the puritan Secretary of State of the Commonwealth reverted to earlier days, perhaps at Cambridge, and threw his heart into his words when he sang:

> "And as I wake, sweet music breathe
> Above, about, or underneath,
> Sent by some Spirit to mortals good,
> Or the unseen Genius of the wood.

But let my due feet never fail
To walk the studious cloister's pale,
And love the high embowèd roof,
With antic pillars massy proof,
And storied windows richly dight,
Casting a dim religious light:
There let the pealing organ blow,
To the full-voiced quire below,
In service high, and anthems clear,
As may with sweetness, through mine ear
Dissolve me into ecstasies,
And bring all heav'n before mine eyes."

Mental associations, the paths of our emotions are somewhat akin to our old country roads. They bend to the right, to the left, double back on their course, and seem less to lead to our desired destination than to hinder. The tortuosities are senseless to those who are strangers. But if we could only see the past and learn how that road was made first by the plodding feet of the countrymen centuries ago, we should know that this bend was to avoid a fallen tree, that to escape a morass, another for fear of the ghost of the man killed there, and yet another because Ugfried, the swineherd, had a sweetheart in a hovel by yonder wood whither his frequent tramping with his pigs had cleared a wide and level path. Lovable as the by-ways are, a time surely comes for every place and for every man when reason recalls the purpose of the road, then it seeks to straighten out the crooked ways, so as to achieve

the vista of a great highway. A highway upon which the King's lieges may travel in safety to the Holy City.

Belief in God based upon experience or emotion is good. It appeals strongly to the human heart. It is a primitive reaction. It is, as we have seen, in large part the origin of authority. But it is inherently unstable. It lacks direction. It has no secure foundations. It is swayed this way and that by local attractions and repulsions. Moods affect it. Physical conditions, health and ill-health alter it. It is weakest in ill-health just when a firm unshakable belief in God is most to be valued. It is strongest in mass assemblies, when a contagious excitement is liable to lead to excesses which may have untoward repercussions. It is too dependent upon stays, props, and struts. It is liable to fail for want of a firm and independent standing, the want of a backbone. Given a firm basis emotion is to belief what all the airs and graces of culture are to life, what the fine arts of colour, form, and sound do for the plain utilitarian. It gives just that human touch to the sheer and stark that clothes it with lovableness.

Is such a basis to be found? Is belief in God arguable, reasonable, logical, demonstrable? Yes, I am convinced that it is, and not only so but it will be found that the argument is touched with emotion of the most lovable order, and with all the venerable dignity of authority. The arguments for

this conclusion have now to be considered. Of these may be stated at the outset the existence of order in the universe.

One of the greatest discoveries of man is the worth of order. Perhaps it is the greatest of his discoveries. Whether he made it by reason of his experience of the value of method in his hunting and his craft, or by reason of his observation of an order in nature we do not know. It seems likely it must have been the latter. Day and night, summer and winter, are too evidently orderly successions to fail to impress even the superficial observer.

The deeper one searches into nature the wider is one's realization of order. In those branches of science with which I am familiar, anatomy, physiology, morphology, and pathology, the evidences of order are unmistakable; indeed they are marvellous. The fine anatomy of a relatively simple tissue is an example of a perfect piece of design or orderly construction. The physiology or the working arrangements of the simplest organ shows an equally perfect relation between the structure and the output of that organ. Morphology shows how amazing is the graduation of development of structure through the range of organisms. A structure seen in a lowly organism in a primitive state becomes all-important in a higher form, in a still higher development the primary purpose of that structure may cease to be needed. The redundant part is

not "scrapped." It is adapted to other uses. Indeed it is sometimes more true to conclude that the adaptation of the part to the higher function was the need for that higher function. The lesser need is surrendered to the greater.

The speaking countenance of man with its infinitely varied play of expression, of pleasure or pain, of love or hate, of appeal or repulsion is the outward and visible sign of a network of delicate muscles beneath the skin, all of which got their origin in ages past from simple slips of dermal muscles which had the sole use of opening and shutting the hole of the spiracle or first gill slit. The eye needed lids to protect it, the lids must open and shut, the gill muscle was taken over, and expanded from this small beginning it has become the whole facial musculature. Another adaptation equally striking may be cited. When certain primates adopted the upright position the weakness of the pelvic outlet was made good by diverting the tail and the tail muscles to the new purpose of making a firm floor to the pelvis. The tail was not scrapped, but turned inwards. Its fine musculature was developed to form an elastic and controllable diaphragm. Thus there was developed the wider outlet through which the great head of the human infant could be born into the world, yet provided with such a firm floor of muscles that it could be secure against the constant pressure of the abdominal viscera.

Such adaptations as these, and there are very many more, argue orderliness, that is intelligent purpose, or mind. There is order even in the reactions of the body to the attack of disease. If there were no constancy in the physical signs of bodily disorders how could we physicians and surgeons find out what is the matter with our patients? Diagnosis, difficult enough as it is, would be wholly impossible; and treatment would be a blind shot in the dark.

From examples in terrestial affairs let us swing our thoughts to the celestial. Contemplate the vastness of the universe revealed in the latest astronomical researches. To try to realize what these mean is to produce in the mind something of the feeling of the delirium of high fever. One's head seems at bursting point. Can we see order there? The question is irrelevant, even fatuous. Rather it should be: What sane man can for one moment doubt the existence of order? It is the most superb demonstration of order and purpose. In the well-known words of Sir James Jeans:

> "To-day there is a wide measure of agreement, which on the physical side of science approaches almost to unanimity, that the stream of knowledge is heading towards a non-mechanical reality; the universe begins to look more like a great thought than like a great machine. Mind no longer appears as an accidental intruder into the realm of matter; we are beginning to suspect that we ought rather to hail it as the creator and governor of the realm of matter."

Or in the no less emphatic statement of Einstein:

> "In every important advance the physicist finds that the fundamental laws are simplified more and more as experimental research advances. He is astonished to notice how sublime order emerges from what appeared to be chaos. And this cannot be traced back to the workings of his own mind but is due to a quality that is inherent in the world of perception."

The task of drawing the lesson from the observations of the biologist, the astronomer and other scientific workers is not the prerogative of these workers alone. Anyone who can appreciate the underlying meaning of the observations is competent to formulate such lesson as he can see. It will be his opinion. But there are some persons whose erudition and critical faculties make them particularly fitted for this task of appraisement. We call them philosophers. The philosopher should be aloof from the bustle of the laboratories. He should overlook them all. He should be able to draw together the output of each of them. A couple of these conclusions may be compared. That erratic genius, Bertrand Russell, says:

> "If it were true that the universe was an organic unity then every part of the universe would be a microcosm, a miniature reflection of the whole."

And he more than hints he sees no such condition but only chaos. The conclusion of A. N. Whitehead is the reverse; he says:

> "The order we see in the world is no accident. There is nothing actual which could be actual without some measure of order. It is not the case that there is an actual world which accidentally happens to exhibit an order of nature. If there were no order, there would be no world."

And again:

> "Each unit has in its nature a reference to every other member of the community, so that each unity is a microcosm, representing the entire all-inclusive universe."

We may take our choice of these personal conclusions. Most of us will agree with Bishop Butler. A well-designed piece of mechanism compels us to conclude, from our experience of such things, that there is a mind behind it, some person devised it. The argument from design holds good. It is sometimes derided as primitive and crude. But it is a true standard of worth. On that basis we may echo the saying of Francis Bacon: "I had rather believe all the fables in the legends of the Talmud and the Alcoran, than that this universal frame is without a mind." Or the axiom of a still older philosopher, Anaxagoras: "The motive force of all things is mind."

That is the first step in the argument, the conclusion that there is order, purpose, mind, in the world as we can read it. The second step is to show that it is inevitable that this mind is the God that religious

men seek, a personal God, the God in whom Jesus believed.

What is the greatest wonder of the world or of the universe? If the question were the subject of a popular newspaper competition there would probably be as great a variety of answers as there were to questions as to the "best" books and the "greatest" men. Most after reading Jean's books would unhesitatingly state that the greatest wonder in the universe is the universe itself. Others with severe practicality would confine their attention to the wonders of this earth, and according to their most recent experience or reading would claim the supreme honour for Mount Everest, or the mighty Amazon, or the amazing properties of the X-rays or of the wireless, or they would recall a sonata of Beethoven, or some work of Phidias, or maybe some verse of Milton or of Dante. Perhaps some would cite the classical seven wonders of the world, and assert on the evidence of such a selection that there was no greatest wonder but many.

Reconsideration of the problem will, however, be likely to secure a common agreement that there is a greatest wonder, and that wonder no other than the percipient of all these other wonders. The mind of man. That which makes man what he is. His personality. That is greater than the greatest of these other wonders. The claim may seem at first glance a piece of absurd fantasy, even if it be not an

impertinence. That a microscopic fragment of life upon a globe that is no more than an atom of dust in this illimitable universe, that this homunculus, this mannikin, should assert his superiority to the universe, or even of the world upon which he lives, ought surely to be stigmatized as absurd on the face of it.

But that is not the claim. It is not that as an individual man is greater than these other things, but that the spirit that informs him is greater than these others. His spirit is greater than the immensity of the universe. Do the several parts of the solar system have any consciousness of each other? Does the sun know the moon, or Venus know Mars? Does either map the face of the other? Does the comet recognize its orbit? Assuredly the answer to all the questions is NO. But man has done all these things. He has measured and weighed them, analysed their contents, mapped and photographed their faces, marked their courses and calculated the times of their movements to decimal points. There used to be a somewhat ribald story told in my student days at Cambridge. It is said that one of the demonstrators of the astronomical observatory had escorted a party of visitors round the laboratory, shown them the instruments, and given them a peep at the heavens. A gushing lady asked the guide if all this did not fill his soul with awe at the might of the Creator. He is said to have replied: "Madam,

it fills me with wonder that men should have found out all this."

Is Mount Everest your greatest wonder? What is it but a colossal mass of inertia. Millions of tons of dirt piled up into the sky. A mass remote, unconscious and immobile. Eroded and crumbled by the effects of frost, rain, and wind. Never increasing but always diminishing. A mass that would be unremarked if it were spread out on any continent, and only noted for the one fact that it rears its tall head more than seven miles into the sky. That is its one claim to distinction. Little man, with his puny strength, dares to match himself against that mighty mass, and seeks to surmount its highest peak, even though it be guarded by conditions that make life barely supportable. He climbs rocks set like the overlapping slabs of a great stone roof, at a slope of 35 to 40 degrees. That is bad enough. But this is done in the thin air of so high an altitude that heart and pulse reach bursting point for want of normal support. There is a horrible pulsation and a terrible roaring in the ears. The breathing is rapid and gasping in the thirst for oxygen. All this would seem enough, but there are added frightful winds, intense cold, and blinding glare from the snow fields. Such conditions as these make a climb of 300 feet in an hour good going, and the carrying of a load of 20 pounds a feat. The intensity of the strain seems to surpass the severest effort of polar

exploration. In the latter long-drawn endurance is the dominating feature, as witness the epic of Scott's tragic march. The climbing of Mount Everest appeals to my mind for I knew one of the pioneers in these explorations: one Dr. Kelas, a lecturer in chemistry at one of our London medical schools. One of the mildest of little gentlemen, unassertive almost to the point of shyness. Yet his delight was to leave his quiet laboratory, with its test tubes, retorts and fine balances, and endure the hardness of these climbs. Physically he seemed the last man one would have thought of as a great climber, or an expert organizer and the leader of such an expedition. He died at his self-imposed task.

Why do men do these things? Why do they not merely suffer, but actually seek out such toil and pain, hunger, and hardship? What is there to gain by it? What material reward or honour? Is it love of knowledge and the advancement of science? Scarcely that alone, for that will not answer for the lower ranks in these expeditions. What is scientific attainment to them? Yet these men who fetch and carry, and obey orders, and upon whose staying powers success may depend, volunteer again and again for these dreadful journeys. Something far stronger than gain, knowledge or honour urges them. It must be a sheer love of danger, of adventure, of daring to do what others dare not. Of daring to

put all to the venture for the attainment of some unique feat—that must be the motive. Goethe said that what struck him most about animals was the way in which they are always attempting the next to impossible and achieving it. If this can be said of animals in general how much more of man, the primate amongst animals? Goethe may again be quoted as pointing to the reason for man's superiority: "Man has the power to act on his convictions that a certain course is right, even if this conflicts with his desires."

There is something in man which urges him to high endeavour, and equally compels him to perform humdrum everyday duties with care and conscientiousness. We call that factor in his make-up personality.

It is one of the odd tricks of language that a word which was first used to describe a mere sham should have become the word for the highest we know: *Persona*—the mask of the old Roman actor. The mask through which the sound of a voice came. The word for the mask has concentrated upon the voice behind the mask. Personality is as mysterious as that voice. We know more or less what makes it. We find it. We enjoy it, or we hate it. But we can never be indifferent to it. We may think about it, describe its characters, but it is ever elusive. We may say with truth that it is that which shows purpose, initiative and creative power. But that tells us little.

Yet of one thing we are certain, that it is the greatest and most moving influence in life.

One of the axioms of Euclid reads: "The whole is greater than its part." Some of the newer geometries put it thus: "The whole is equal to the sum of its parts." We may even go a step further and maintain that: The whole may be greater than the sum of its parts!

A number of pieces of mechanism, pistons, cranks, wheels, struts, and fabric, may be seen in an engineering shop. Each part may have its interest to us. But those parts assembled in their proper order will produce an aeroplane capable of flying at 400 miles an hour. A performance no one without previous knowledge would conceive as the sum of its parts. A fine building is greater than the most rare and costly of the stones that go to make it. A team of men, a crowd, or a mob will do things that would seem incredible if we had to calculate the value of each unit and just add them together.

Man is more than his tissues, more than his brain. Dr. T. E. Lawson has estimated that the body of a 10-stone man contains: Enough water to fill a ten-gallon barrel; enough fat for seven bars of soap; carbon for 9000 lead pencils; phosphorous to make 2200 match heads; magnesium for one dose of salts; iron to make one medium-sized nail; sufficient lime to whitewash a chicken coop; and sulphur enough to rid one dog of fleas! The whole, at

present prices, could be bought for 5s. It is much the same whether the body is that of a village idiot or of an Einstein. Do these components make a man? We may well take the answer from Smuts, who, in his discourse on the philosophy of "holism," says: "Human personality is a new whole. The structure of matter, life and mind are inseparably blended in it and it is more than all of them. . . . It is the severance of body and spirit which makes ignoble use of either possible. Together, and in that unity which constitutes the whole, they mutually support, enrich and ennoble each other."

Sum up the total of the greatest thing we know: The personality of all who have gone before, of all who live now, of all who may live in the time yet to be. The whole of that must be but a shadowy image of the greatness of the personality that is behind all things. That personality cannot be less than this, else it is less than man, which is absurd, for the whole would be less than the part. An impersonal force as the ultimate reality is irrational, unbelievable, for it cannot have given rise to that which is greater than itself. God must be personal, a personality to the *n*th degree.

A satirist once said: "Le bon Dieu a créé l'homme à son image; et l'homme le lui a bien rendu." His pithy saying has become a common taunt of the agnostic to the worshipper. But the saying is true. It is a fact. How else could man attempt to register

or envisage his thoughts except in the terms of things known, in the terms of his own experience? Max Müller has truly said: "In the ordinary sense of knowledge, we cannot have any knowledge of God: our very idea of God implies that He is beyond our powers of perception and understanding. Then what can we do? Shut our eyes and be silent? That will not satisfy creatures such as we are. We must speak, but all our words apply to things either perceptible or intelligible. The old Buddhists used to say, "the only things we can say of God are 'No, no! He is not this, He is not that—whatever we see or understand, that He is not." But again I say, that kind of self-denial will not satisfy such creatures as we are. What can we do? We can only give the best we have. And the best we have or know on earth is Love." A conclusion that is an echo of the Epistle of John.

Finally, Jesus conceived of God in the term "Our Father." Was there ever any finer or higher testimony to the worth of human nature than to conceive of God in the term of the best and kindest known. Fatherhood is an almost unique characteristic of the human race. The male animal of all the species plays his part in the production of progeny, but for the most part knows nothing and cares less what results may spring from his action. Man alone exhibits the supreme charge of fatherhood.

Argument, logic, and attempts at proof may seem

but a small part of the stuff that religion is made of. Yet such a line of thought as has been sketched here is at its core. It makes religion what it is, a great stabilizing influence, a great motive force, the supreme influence in human life. It brings human life into line with the divine. There is no achievement greater than that, for it is the fountain of all goodness, beauty, and truth. There is no sadness in reason, no loss of romance, no fading of beauty. Schiller was wrong when he wrote:

"The intelligible forms of ancient poets,
The fair humanities of old religion,
The power, the beauty and the majesty
That had their haunt in dale or piny mountain,
Or forest by slow stream, or pebbly spring,
Or chasms and watery depths—all these have vanished;
They live no longer in the faith of reason."

Far more true to life are the words of George Herbert, the poet of *The Temple*:

"I know the wayes of learning; both the head
And pipes that feed the presse, and make it runne;
What reason hath from nature borrowed,
Or of itself, like a good huswife, spunne
In laws and policie; what the starres conspire,
What willing nature speaks, what forc'd by fire;
Both th' old discoveries, and the new-found seas,
The stock and surplus, cause and historie:
All these stand open, or I have the keyes:
Yet I love thee."

# III. MAN

## III

## *Man*

> "What is man, that thou art mindful of him? and the son of man, that thou visitest him? For thou hast made him a little lower than the angels, and hast crowned him with glory and honour."
>
> PSALMS viii. 4.

THERE can be no one who fails to feel a thrill at the recital of these ancient words. They have all the ringing splendour of a noble anthem rendered by a perfect choir in a venerable fane. All will agree in the magnificence of the phrasing. We are carried away by the loftiness of the sentiment, even though we may confess to an inability to comprehend the scale in creation allotted to man in his little lowerness from the high degree of the angels. For of angels, other than very human angels, we know nothing.

Religion through its master minds has attempted times without number to answer the question : What is man? When the answer has been given in the language and imagery of poetry there has seemed a warmth and rightness about it that has appealed to the imagination and has been correspondingly captivating. When the answer has been in measured prose, based upon observations on man and his

record, then there has been an amazing diversity in the terms and conclusions of the replies. There has been more than diversity. The definitions, indeed, have been in such complete and irreconciliable opposition that it might almost be thought they could not apply to one and the same object, and that they dealt with two dissimilar orders of being.

Jesus of Nazareth took it for granted that His hearers agreed in the essential kindliness of human nature, for He asked: "What man is there of you whom if his son ask bread, will he give him a stone? Or if he ask a fish, will he give him a serpent?" In His parable of the sower, too, He likened the good ground to men of "an honest and good heart." But Jeremiah thought so poorly of his fellow-citizens that he exclaimed: "the heart is deceitful above all things, and desperately wicked." Paul appealed to his Corinthian converts to show the vigour of humanity: "quit you like men, be strong." But the Psalmist, contrarywise, considered timorousness the characteristic of men, for he says: "Put them in fear, O Lord: that the nations may know themselves to be but men."

In the epic of creation the scribe crowns his story by the scene of the coming of man on the earth, thus: "And God said, Let us make man in our image, after our likeness." But Bildad, the Shuhite, one of Job's comforters, said: "Man, that is a worm,

and the son of man, which is a worm." Job's acquaintances were as divided in their valuation of man as they were in their diagnosis of Job's troubles. Elihu, the Buzite, the youngest of the friends, boldly declared: "there is a spirit in man: and the inspiration of the Almighty giveth them understanding." But Eliphaz, the Temanite, was a thorough-going pessimist, for he said: "What is man? — abominable and filthy is man, which drinketh iniquity like water."

The same diversity of sentiment or judgment may be found in later authors, masters of our western literature. Milton, the high-souled Puritan, wrote: "who kills a man kills a reasonable creature, God's image." Sir Thomas Browne, and never was man or physician more filled with the milk of human kindness than he, was constrained to write: "The heart of man is the place the Devils dwell in: I feel sometimes a Hell within myself; Lucifer keeps his Court in my breast, Legion is revived in me." But, after much cogitation and argument, he concludes later: "There is surely a piece of Divinity in us, something that was before the Elements, and owes no homage unto the Sun. Nature tells me I am the Image of God, as well as Scripture: he that understands not this much, hath not his introduction or first lesson, and is yet to begin the Alphabet of Man.'

Shakespeare, with a touch of cynicism, writes: "O, what may man within him hide, Though angel

on the outward side!" and Pascal runs the whole gamut of dissonances when he exclaims: "What a chimera, then is man! What a novelty, what a monster, what a chaos, what a subject of contradiction, what a prodigy! A judge of all things, feeble worm of the earth, depository of the truth, cloaca of uncertainty and error, the glory and shame of the universe!"

Theologians, at any rate those of the older schools, were more certain and emphatic in their assessment of what man is in the state of nature. *The Westminster Confession*, with its Longer and Shorter Catechisms, is precise in its statement. A learned scientist, a Fellow of the Royal Society, who was responsible for the publication in 1897 of a facsimile of the first edition, wrote: "Nowhere else can be found so plain and simple, yet so complete, a statement of Scripture Doctrine." And he showed how it had been used by many Christian churches and commended by an Archibishop of Canterbury. In the Shorter Catechism "for catechising such as of weaker capacity" there are two questions:

"*Q.* 15. What was the sin whereby our first parents fell from the estate wherein they were created?

"*Answer.* The sin whereby our first parents fell from the estate wherein they were created, was their eating the forbidden fruit.

"*Q.* 19. What is the misery of that estate whereinto man fell?

"*Answer.* All mankind in their fall lost communion

with God, are under His wrath and curse, and so made liable to all miseries in this world, to death itself, and to the pains of hell for ever."

The Anglican Prayer Book is less vehement. The catechism says nothing on the point. But the baptismal service says: "all men are conceived and born in sin," and the Ninth of the Articles of Religion says: "man . . . is of his own nature inclined to evil . . . and therefore . . . every person born into this world . . . deserveth God's wrath and damnation." The Roman Church, by the Council of Trent, says: "Adam lost original justice not only for himself but for his descendants, and that he poured sin—the death of the soul—into the whole human race."

Despite all this insistence on the bias of man for evil, which might have given some hint of his origin, theologians, and scientists also, firmly believed in the special creation of man as a unique being. A cautious theologian, the head of a Cambridge theological college, in a book on Christian doctrine published at a time when the theory of evolution was widely known and accepted by members of the University, wrote thus: According to the accounts in Genesis, "man is a result of specially deliberate and direct creative will"; and again there was "a mysterious new departure when the first human pair was produced. There was not a dislocation of immaterial design, but a break of mere material continuity, when there was to appear the creature,

at once spiritual and material, who should resemble, know, and love the Creator. No discoveries in material nature can properly disprove this."

Man, until comparatively recent years, thought he was the centre of the earth and the earth the centre of the universe. It was inevitable that this should be so until experience and observation taught him otherwise. The lesson was a hard one to learn, but it has been learned. Considering the magnitude of the change involved it has been admitted in a marvellously brief space of time. Compare the attitudes of mind of the generality of men in 1860 and in 1926, the dates of two meetings of the British Association for the Advancement of Science at Oxford. At the meeting of 1860 Sir Richard Owen, the doyen of anatomists of his day, although accepting the evidence which indicated a much longer history of man on the earth that Biblical records were supposed to allow, poured scorn on the idea that man was merely a transmuted ape. He repeated the assertion of his presidential address of two years previously, that the differences between man and ape were so great that it was necessary, in his opinion, to assign mankind to an altogether separate Order in the Animal Kingdom. In particular he claimed that the human brain had certain structural features never seen in the brain of anthropoid apes. Owen's assertion was given an emphatic denial by Huxley, and the blunt challenge was the signal for the

opening of a tremendous convulsion in thought. The fiercest controversy was aroused in scientific and theological circles, and the mind of the people learned and unlearned was stirred to its depths. Scientists keenly scrutinized the evidence adduced in support of evolution. Not all were impressed. Sir J. Herschell, the astronomer, said it was "the law of higgledy-piggledy"; and Sedgewick, the Professor of Geology in Cambridge, held it to be "false and grievously mischievous." Many theologians shouted themselves hoarse over the "hell-begotten" theory; and the populace made a rare joke of the search for the "missing link" and their own lost tails!

As a contrast at the meeting of the British Association in 1926, in the same City of Oxford, Professor H. J. Fleure, the President of the Section of Anthropology, in his opening address, said: "There is no longer any doubt amongst scientific workers that the body of and mind of man are the outcome of a long process of descent with modifications, and that all life on earth is genetically one. The unity of animate nature is accepted without reserve or qualification, despite little outbursts where old modes of thought linger only to demonstrate the widespread applicability of the principle that survivals tend to have a peripheral distribution." A pronouncement such as this, so entirely contradictory to the view so tenaciously held by the distinguished anatomist Owen and the vast majority of mankind

a few years ago, should, one would have thought, have stirred up some excitement, and have made its mark in the public press of the time. Scarcely a notice of the address of the President of the Section of Anthropology however appeared, for by 1926 the idea of the evolution of man from a lower zoological form had been so thoroughly accepted and assimilated that there was no longer any "news value" in the discussion of the topic.

To-day it is true to say there is no one of scientific training and experience, and scarcely anyone of culture and reading, who does not fully accept the conclusion that man is the product of a long process of development from a lower animal type, and that all life on earth is and must be one in its primary origin. Nature is one and man one with nature. Evolution is the mark of growth, and man bears in his body the marks of his evolution.

The whole architecture of his body is planned upon the same fundamental lines as that of all the other vertebrates—fishes, reptiles, birds, and mammals. The anatomist is able to show that there is a common basis or ground plan in these organisms from the least to the greatest. Thus the plan and structure of the massive brain of man can be demonstrated in all its parts in the lower animals, indeed the anatomy of the brain is better appreciated by the student through the simpler brains of these animals. There is no new structure in man's brain,

but there is an immense growth in quantity and quality. That most adaptable instrument of man's brain, his hand, perhaps the most perfect piece of handiwork that nature has produced by a long process of evolution, is homologous, part for part, in bones, sinews, muscles, and nerves, with the forelimb extremities of other creatures, with the prehensile limb of the monkey, the hoofed limb of the horse, the pawed limb of the dog, the wing limb of the bird, and the pectoral fin of the fish. The ground plan in all these is the same. In each the completed form of the forelimb serves the purpose of the particular creature; forelimb and brain are related in their development and usage. In man the highest has been attained, he has an instrument of skill and cunning workmanship which can execute in detail and perfection the severest demands of the brain, and in so doing produce marvels of art and craft. The forelimb, that in its earliest stage of development was no more than an automatic paddle for the fish in the sea, has become the special servant of man's brain and its chief executive officer.

A like comparison of origins and development might be made through man's body from the crown of his head to the sole of his foot. Remnants of earlier structures abound in his body, either wasted to vestigial remains or diverted to other and finer uses as man's upright form, broad face and binocular vision attained their present development. The

muscles that opened and closed the gill-slits, or the breathing holes, of the sharks are found diverted to form the complicated facial muscle of man which give him that "speaking countenance," sometimes our delight, sometimes our horror. A minute body embedded within the brain is traced to the remains of the cyclopedian eye of some reptiles; a sort of primitive "safety first" mechanism to warn of dangers overhead. That troublesome "appendix" to his guts is the last remnant of a huge fermentation vat needed to convert the coarse food of the herbivors into useful calories. The tail, lost to sight, is there in his body nevertheless, though changed in shape and fixed to support the outlet of man's broad pelvis. In its obscurity it serves a much higher and more useful office than a free tail.

Not only are there existing in the body these milestones of man's ancestral journey, but with the growth of each human being, from the fertilization of the ovum to the birth of the full-time baby, there is a recapitulation of this journey. At many stages in this development the human fœtus has a form and structure indistinguishable from the fœtus of other vertebrates, and in the changes of growth from month to month it shows the temporary but recognizable forms of organs that are the permanent characters of lowlier and less developed creatures.

These facts, the anatomical plan of man's body, the details of his organs, the remnants or milestones

of his past, and the recapitulation of his past in his individual growth are verifiable by anyone, there is nothing occult about them. They are more easy of recognition than are the remains of the old British and Roman roads in the maze of our modern highway system.

Does a common origin of body involve an equally common origin for the highest manifestations of that body? Has man's mind, or soul, or spirit, or by whatever term we may designate the personality of man, any correspondence with the activities of other animals? There are many who concede on the evidence of anatomy and embryology a common bodily origin, but they boggle at the idea of an equally common origin of mentalities of such diverse orders. Some adhere to an old interpretation of certain phrases in that epic of creation, the early chapters of the Book of Genesis. "God created man in His own image"—and again, "God formed man of the dust of the ground and breathed into his nostrils the breath of life; and man became a living soul." These passages are held by some to indicate a specific intervention at some long distant date on the part of the Creator (quite apart from what we understand by divine immanence) which made man a man, the possessor of a soul, and distinct not only in degree but also in kind from all other creatures. To put such an interpretation upon these passages is to hang a very heavy argument upon very slender

pegs. Surely these early writings were in the nature of poetic sagas, the fine fancies of men of insight, in which they sought to give coherence to the teeming thoughts of their minds. To demand literalness for such vivid drafts of mental impressions is unjust to these ancient seers. It would be just as unfair to insist on literalness in the standards of degrees between angels and men!

Of recent years an immense amount of study and experimental work has been done on the psychology of man and of animals. Daring explorations have been made into the secrets of mental processes. Some of this work has been applied to the remedial treatment of men and women with shaken minds, and by this test it is a great advance. It has put into the hands of the competent a means of diagnosis and of treatment of mental disorders which was unattainable before. Some of these new principles have been applied to the training of youth with success. But much of the new psychology is still in a state of flux, schools of experiment and thought are at variance over the interpretation of their discoveries. Nevertheless it is safe to say that there is, by common consent, undisputed agreement that there is a common basis in all the elements of conscious life whether these be expressed by "instinct" or "thought." The school of psycho-analysts may lay the greatest stress on the facts of heredity and of tradition. The school of behaviourists may tend

to dwell more on the influence of environmental factors. But both schools agree that the foundation of the character of man and of all his activities, whether these be in the fields of craft, art, morals or religion, is to be found in those primitive instincts or reactions which man has in common with the lower animals. The impulse or the urge of life in man and beast is one and the same.

There is nothing surprising in the foregoing conclusion. It is no more surprising than the finding that there is a common origin for the body of man and brute. Concede the corporeal relationship and the mental relationship inevitably follows. To some both conclusions are revolting. They still hanker after a separateness for mankind, a difference in kind. Such a desire is hurtful to those who entertain it. It produces that dangerous frame of mind which designates as "beastly" such natural human functions as feeding and procreation. Followed to a logical conclusion such ideas would bring about the extinction of the human race. The fact that mankind has survived so much teaching of this unnatural order argues well for the sterling strength of human common sense; generations might bow their heads in the House of Rimmon and patter the creeds that condemned their naturalness, yet they continued to live their lives as wholesome men and women, and reared children to follow in their steps.

To my thinking the conclusion of a common origin

for man and brute presents a more wonderful picture and a more dramatic perspective than could any idea of a separate creation. A separate creation of man, with his many varieties, the tortuousness of his mind, the imperfections of his body, and above all his native frailty, defencelessness and nakedness, would constitute a reflection upon a specific creation. A poor job! As the issue of an evolution from a small and remote beginning man is a noble achievement even at his poorest. Faults, flaws, and inequalities find an explanation from the several stages of development and carry a promise or at least a hope of advance. A difference in degree is just as important and as wonderful as a difference in kind. We recognize that fact in a host of observations. The seedling oak becomes the mighty tree. The puling infant, the leader and inspirer of millions. The steaming kettle, the engine of the Royal Scot. The box kite, the swift seaplane. The reed pipe, the cathedral organ. So the tale might be told without end.

When Darwin wrote his classic, *The Descent of Man*, his evidence for man's place in nature was drawn for the most part from existing conditions, and the comparison of men, civilized and savage, with animals. Evidence of early prehistoric man was lacking. Hence arose the popular jest of the search for the "missing link." Since those days there has been a priceless accumulation of evidence dug out

of the earth from all quarters of the world. The bones of ape-men have been found in England, France, Germany, Java, China, Rhodesia, and elsewhere. Neanderthal man, discovered in Germany in 1856, along with remains of rhinoceros, cave bear, and hyæna, was long a source of contention. Broca, the French anthropologist, promptly welcomed it as evidence of the character of the early German. Virchow, the German pathologist, maintained that the remains were pathological, the result of disease. National pride can sway the minds of scientific men, even as others! Virchow was wrong. Similar remains have since been found in France, Belgium, and England. In a cavern of a river bank near Spy there were found in 1886, sixteen feet deep, two nearly perfect skeletons of a man and a woman of even lower grade than Neanderthal man, and with them numerous prehistoric instruments. In 1891, Dr. Dubois, searching in Java, dug out of another river bank forty feet below the surface, the remains of Pithecanthus Erectus, "the lowest human cranium yet described, very nearly as much below the Neanderthal as this is below the normal European."

The remains of palæolithic, or early stone-age man, are world wide, and the variations in the characters of these remains are evidence that "man" even in those far-off days was not all of one race. There were diversities, "nationalities" even then, and the physical differences that marked out these races

were greater than in the races of the present day. Man even then was old in point of time, since variations take time to appear and be established, or there were several strains of early men which had branched off from the parent stem at different times bearing the marks of their separate development. Probably both conditions had occurred. Certain it is that the farther we go back the more separate and different the types of men; they differed amongst themselves as widely as the gorilla, chimpanzee, and the orang of to-day. Strength is lent to the idea of several out-growths of man-like or man-becoming creatures by the evidence that the earliest men of the Neanderthal type died out, they failed as did the prehistoric monsters. Early man's huge jaws and broad molars are evidence that he was a vegetarian; he lived on nuts, fruits, and roots, and occasional grubs, and such small deer as he could find. His whole life and that of his female was absorbed solely in the search for food. In the great glacial periods of mid-pleistocene times Europe was ice-covered. Neanderthal man must have found living hard; his vegetarianism killed him!

Another type of man took the field, early neolithic man, commonly known as the Cro-Magnon race, from the name of the caves in France where the earliest remains were found. He was recognizably human. Slender and fine, bigger brained, with straight back and limbs. He had seen the vision

and heard the injunction, "Rise Peter kill and eat!" There was action and reaction. The stimulating flesh food increased his capacity for the chase. The hunt developed his faculties. Instead of spending all his waking hours in a laborious earth-bound search for food, like a veritable man with a muck-rake, his skill in capturing large supplies of animal food gave rise to division of labour. He could hunt, his woman could stay with the stuff. His Eve made "aprons" and "breeches" of skins. The rich food and the warm clothing enabled him to live and thrive where Neanderthal man starved, froze, and died. It is observed that man's mental processes are most active in regions where the temperature is below that of greatest physical comfort, provided that he has mind enough to find ways of protecting himself. His battle against cold has made him what he is.

The impetus given by better food to the evolution of early man must have been immense. Coarse vegetable food necessitated great guts and a bulky belly. The lesser volume of flesh food brought about the lithe frame of modern man. The good food probably prolonged growth and thereby allowed of expansion of the skull bones and the lengthening of the lower limbs. It may have retarded the maturity of sex, in itself calculated to prolong growth of brain and body and so secure finer men and women. The freedom of the women from the

toil of food gathering would favour a longer gestation. In apes the average period is 220 days, in man it is 280 days. Those extra 60 days have been far-reaching in their consequences. Owing to the peculiar arrangements of the fœtal circulation the best blood derived from the placenta, the source of the nourishment of the growing infant, is driven by the fœtal heart direct to the head and upper limbs. The longer prenatal period of the growth of the brain produced the distinctly human infant, great-headed to the point of top-heaviness, and helpless by reason of its undergrown legs. Helpless and incapable, it made the greater appeal to the mother heart. The mother was concerned for the life of the infant, and the father concerned for the life of both. So the long and tender family life of the human races came about. Speech, fire, tools, the domestication of useful beasts, and the cultivation of the soil added their cumulative effects. It is a fascinating story. Far grander, with far more promise in it, than the sorrow of the older theologians for the loss of an imaginary primitive innocence in a catastrophic fall. Man is not a lost soul but a rising star!

Neanderthal man and Cro-Magnon man may be considered as types of the diversities of origin of prehistoric men. There were probably many separate off-shoots from some anthropoid source. There is no hint that one type was transformed into

another. Whether or no there are strains of blood other than the finer Cro-Magnon flowing in our veins to-day we do not know. Suggestive reversions or atavisms do occur. A disorder of one of the glands of internal secretion, the minute pituitary gland, will produce the condition known as acromegaly, in which the features of giantism imitate to some degree the forminable features of Neanderthal man. But there are much more suggestive cases of atavism, such as the recent discovery of "Gardarene man" in Greenland, where a twelfth-century Norse grave gave up the human remains which, though not fossilized, were yet more massive than those of the Rhodesian fossil man.

As there were differences in the beginning, so there are differences in men to-day. There is greater conformity to the general type, but the main races of men—black, red, yellow, and white—that inhabit the earth to-day show such differences that it is possible, even probable, that these may have had dissimilar origins in point of time from the prehuman stock. Differences of character, physical and mental, are the common touch-stones. But there are more subtle ones than these. There is the higher degree of fertility between people that are close akin, and the lesser degree of fertility between people of extreme types. Chinese and Malay are near akin, matings are fruitful and the progeny vigorous and successful. White and blacks are far apart in com-

parison, the matings are less fertile and the progeny less vigorous. Blood tests show a basis of likeness between men and apes, but there are particular differences in the reactions which indicate the distance of the linkage, and these differences are found to exist between widely different types of men.

The idea of "the Brotherhood of Man" which some have exalted to a religious tenet, cannot be accepted as literal in a scientific sense, except as recognizing the common source of all life. Traced to its source it would appear that this tenet was originally formulated for political purposes, and that it was not a religious or ethical idea. Dr. W. W. Tarn, in his Rayleigh lecture, said that the tradition is clear that Alexander the Great was the first to think of the idea of the unity of mankind. It was the business of a king to promote the unity of mankind. It was the business of a king to promote unity and concord among all his subjects without regard to race.

There has always been an instinctive antipathy between national groups, and not always with good reason when the relationship between these was close. The Jews were prohibited intermarriage with the Canaanites; witness the tragedy of the purge of Ezra the scribe on the restoration, and the rebel tract for the times, the book of Ruth. The Greeks, including Plato and Aristotle, believed that

non-Greeks were by nature enemies or slaves. The early northern invaders of India strove to keep their stock free from contamination from the autochthonous tribes whom they termed "the apes" and "the noseless ones," so came the caste system of India, which survives though it has failed of its original purpose. The Chinese, a polite people, call us "foreign devils." The intermarriage of various nearly related strains is genetically good. Hence perhaps the vigour of Europeans, who, despite their several nationalities and languages, are inextricably mixed; a medley of strains of Nordic, Alpine, and Mediterranean peoples. But the mixture of Dutch and Cingalese, which has produced the Burghers of Ceylon, has extinguished the white strain, except in so far as it has given a stouter body to the resultants than is possessed by the slim island folk. Some have traced the decline of the vigour of the Portuguese to the introduction of black strains from slaves, who supplied the place of the native men lost through the perils of world exploration and colonization.

Race "prejudice" has been held to be both unscientific and irreligious. It is neither, nor is it prejudice. It is based upon an inherent human instinct. It is as strong in black as in white, in yellow as in brown. Yung, the psychologist, writes: "I have a Red Indian friend who is a governor of a pueblo. When we were once speaking confidentially about the white man, he said to me: 'We don't

understand the whites; they are always wanting something—always restless—always looking for something. What is it? We don't know. We can't understand them. They have sharp noses, such thin cruel lips, such lines in their faces. We think that they are all crazy.'" I have heard Zulus say that the smell of the white man was disgusting to them; and Mongols, the people of the sleepy eye, express their dislike of the staring eye of the Englishman! The problem of racial distinction and of racial respect is one of the greatest man has yet had to deal with. Glib shibboleths won't help to solve it, nor will outbreaks of savage tribalism.

How did man become a living soul?
When did man become a living soul?
Why did man become a living soul?

To the last of these questions science has no answer. It has not even a suggestion to make. Man's attempt to answer the question is in the language of religion and poetry. In *Paradise Lost*, Adam, in the state of innocency, asks the Archangel:

> "What cause
> Moved the Creator in His holy rest
> Through all eternity so late to build
> In Chaos";

The angelic reply is cryptic and contains a hint of reticence:

> "Beyond abstain to ask."

Adam, after tasting the tree of knowledge, finds the answer himself:

> "God made thee of choice His own, and of His own
> To serve Him."

How did man become a living soul? How did the physical and mental qualities we are able to recognize in the germ in the lower animals of to-day blossom and bear the amazing fruit of the mind of man? To this question science finds at least a partial answer from the study of heredity and variations. It has been shown that even when there is a strong and enduring fixity of the type of an organism yet variations occur which may become established and therefore new types. The work of Mendel has amply proved the tenacity of type and the strong tendency for any variation produced by crossing to revert to the originals. The study of variations in the characters of organisms—"sports" the breeders call them—show that some of these variations are of sufficient vigour, in suitable environment, to become established. There are numberless variations from the norm. Some of these are clearly reversions to primitive conditions, such as a hare-lip in man. We speak of these as failures in development. Others are less easy to classify. Others may be real variations, attempts at a new development. In some prehistoric age, when types and heredity were perhaps less firmly established, variations may have been more

dramatic if we could have seen them, and through one or several of these *homo sapiens* was evolved. Science can go no further. Religion and poetry again essay another step in the answer:

"There's a divinity that shapes our ends."

When did man become a living soul? The science of geology points a finger to a far-distant period near the beginning of the Miocene period, perhaps a million years ago, as the era of the first attempts at man-becoming. When in the life of man there arose a consciousness of something outside and beyond himself we can infer from the discovery of his remains. We can scarcely think that Neanderthal man had a soul above the search for food. He had no time to think, hunger filled his mind. Cro-Magnon man had time. He had less jaw and more brain. The ceremonial burial in the caves at La Chapelle aux Saints in the mid-pleistocene period, half-a-million years ago, is very generally held to imply that men were already beginning to picture a life after death. "The Cro-Magnon people . . . were not destitute of religious ideas, since they believed in a future life; the care bestowed on the interments and the objects deposited with the deceased proving that they thought the spirits of the dead had wants beyond the tomb, and were able to make use of ornaments and weapons." We can only guess what gave rise to the idea of a future.

Was it in the dream of his sleep that he met once again dead friend and foe? Or did he think that death was like sleep, and that there would be an awakening? Or did he read a lesson from the springtime?

We dare not read into these findings too much of our own thoughts. But we may be sure of this. No matter how little apprehension primitive man may have had of the meaning of his act, and no matter how the thought came to him, there is the fact. Primitive man acted in the belief that the sacrifice of possessions, whose value, as measured by the time and labour entailed in their fabrication, largely exceeded our most costly memorials, had some advantage to the dead. The dead were not wholly dead to him. The conception, however feeble, included within it the germ of all that was essential to religious faith and the ultimate development of high ethics, conscious self-sacrifice.

Given the concept of a life after death, some sort of continuity, there follows the inevitable belief in an external world, a world of spiritual values other than this material universe.

Whether or no this belief extended to the generality of prehistoric man or only to those dynamic individuals who had become by force of character their leaders and lawgivers we do not know. Probably there was then, as there is now, just as wide a divergence in the mental make-up of individuals as

there was in physique. To-day men range from aments to geniuses. But the bulk of us are good, solid, and sometimes stolid persons. Recently a physician of one of the London hospitals investigated the mental reactions of a series of his patients. He sought to discover the nature of the values which "unify and justify life, give it coherence, and make it on balance worth living." Perhaps the most surprising discovery was that most of these patients had no such "pivotal" values, or even a conscious need for them. They had interests—the men in sport and politics, the women in fashions, domestic economics, and the doings of Royalty, "particularly their illnesses, marriages, and pro-creation"; and to both sexes crimes and criminal trials, scandals, sexual subjects such as birth control and the ways of modern youth, and religion as set forth by notabilities in the popular press, were matters of the deepest concern. But their general reaction to life could have been summed up in the words of a woman of fifty, the mother of twelve live children, who said: "You have to take what is coming to you and ask no questions." There was a minority of patients with religious, philosophical, or other values; they fell into three main categories. In the first category were those who had pivotal values but never consciously needed them; these were for the most part well-balanced people, efficient, and unimaginative, and their values were vocational or recreational

rather than religious or philosophical. The second category included those who needed such values and had found them without difficulty, and they were chiefly people in whom religious needs were combined with a faculty for uncritical belief. In the third group were those who, needing pivotal values, had either failed to find them or had found them only after much searching, in this group mental illnesses were common. Thus there is modern confirmation of the ancient observation of Aristotle: "No excellent soul is exempt from a mixture of madness." Yet it is from amongst these that genius springs and of whom it has been written:

> "Such souls,
> Whose sudden visitations daze the world,
> Vanish like lightning, but they leave behind
> A voice that in the distance far away
> Wakens the slumbering ages."

Findings such as these explain the contradictory characters to be found in men. The view that man is in a continuous state of evolution and that he therefore shows innumerable variations, some great and good, some inexpressibly vile, is an answer to the problem. To any other view such divergencies are impossible of explanation. On the one hand we have exhibitions of the tiger in man, of a savagery worse than bestial, only too well known in the records of history down to the present day. On the other hand there are the gracious influences of

the leaders of thought in social and religious life, who through suffering and patient endeavour have brought light and leading to the docile multitude. No wonder Gnosticism and Zoroastrianism sought an easy solution in the conception of the existence of dual and opposed principles of good and evil—two Supreme Beings in eternal conflict. To the evolutionist atavism in behaviour is no more surprising than atavism in anatomy. And as there is clear evidence that in the aeons of years there has been achieved in the body of man an increasing tendency to uniformity within the main variations, so also there is some evidence of an equivalent and increasing appreciation of good and hatred of evil.

Is man a free agent? Does he act of his own free will on his own initiative and intention, or is he so controlled by influences within and by circumstances without as to be an automaton? He seems clothed in a guise of apparent freedom, yet is he controlled by forces beyond his control? The conflict between the advocates of free will and determinism is age old, and the issue is as indeterminate as ever. It is one of the major antitheses of life. Religion and science are agreed in the recognition of the difficulty, each has two schools of thoughta pparently irreconcilable and hopelessly contradictory in their teaching.

Religion has Predestination as developed by Calvin and before him by Augustine. A doctrine that is at

one and the same time sublime, and yet (if I dare say it) ridiculous. Sublime in the exaltation of God, and ridiculous in the expectation that man will agree with joy to a decree of eternal damnation pronounced from eternity upon his little life even before he has lived it. The doctrine is not Christian alone, it is common to all religions. The fatalism of the Mohammedan is proverbial. In his religion the doctrine is carried to its most pitilessly logical extreme: "All that has been and all that will be was decreed in eternity and written on the *preserved table*." "Kismet" has passed into the currency of many tongues.

Religion has also taught the converse, and insisted upon the free will of man. The Gospel call to repent is evidence of this. The emphasis of Augustine on Predestination arose from the rationalistic teaching of Pelagius, who was held by his contemporaries to be a Briton, and of Celestius who was thought to have been an Irishman. Both displayed that truly British attitude of mind that could combine the apparently irreconcilable and illogical, a fervent devotion with thorough-going rationalism. They denied original sin, and asserted that Adam's fall injured himself alone and not his children. They asserted complete freedom of will and the possibility of a sinless man. In later days Arminius, or James Harmensen, a Dutchman, came near to adopting a

similar attitude. His teaching has had a profound effect on the theology of Englishmen, whilst the Scots for the most part cleave to Calvin. Even amongst the fatalistic Mohammedans there have been revolts, and sects which have displayed free thought and asserted free will.

I remember years ago asking an eminent Presbyterian divine how he squared his evangelical appeal that all men should repent with his Calvinistic theology. With a merry twinkle in his eye he said: "When I am on my knees I am a Calvinist and pray to Almighty God to save men, when I am in the pulpit I am an Arminian and beseech men to repent."

Philosophers have given as much thought to the question as the theologians. Doctrines of Determinism and Necessitarianism have been and still are widely held. Such names as Hobbes, Spinoza, Leibnitz, Priestley, and Hamilton are evidence of the strength of the advocates of these doctrines. The Determinists put the position in as subtle a fashion as some theologians. They hold the will is not a free agent, but is irresistibly determined by providential motives, that is, by motives furnished by Providence, which turn the balance in our mental deliberations in accordance with its views. The doctrine of Necessity is simpler but harsher. It is the statement that certain causes, under certain con-

ditions, must give rise to certain effects: everything happens according to fixed laws which cannot be changed; or as Democritus puts it: "Every ocurrence has its cause from which it follows by necessity."

Science, through research into the facts of heredity and the physiological control of bodily and mental functions, has much light to throw on the matter. It is the common rule for each animal and plant, in all essential characters, to resemble its parent. The law has been proved to a demonstration. No one doubts it. We are the products of our fathers, both in body and mind. How then can we be free? Again, the mind of man is conditioned by more than his brain. There are glands in his body whose internal secretions, those subtle essences which are distilled into the blood stream, exert an influence on body and mind which cannot be over-estimated. The effect upon the body of the loss of function of one or other of these glands and its restoration is dramatic in the extreme. A minute gland buried within the skull, a remnant of the foregut, controls ordered symmetrical growth; disorder of the gland will produce giantism. A gland in the front of the neck maintains the texture of the tissues; disorder by excess of secretion will produce the startling disturbance of exophthalmic goitre, or by insufficiency myxoedema with coarse, harsh skin and dull, sluggish wits. The sex glands, through their

internal secretions, coming into action at puberty make a man a man and a woman a woman. It is the influence of this internal secretion of the sex glands which changes the slim soft-voiced boy into a man, rugged of face, harsh voiced, brawny, and hairy. It is this influence which changes the tomboy of a schoolgirl into a shy maiden with swelling bosom and softly moulded limbs. Deprive either of these youths of the glands which make these changes, and you get no man and no woman, but a creature that shows the muddled features of both and a mind that is repellent to both man and woman alike. The effect of these internal secretions upon the mind is no less striking; unless there is a full and orderly development of all these glands the mind fails to develop, the being is an "ament"; whilst there is a growing tendency on the part of alienists to regard the failure of these functions in the adult as the cause of the onset of dementia.

Psychology has given its contribution to the discussion with no uncertain voice. The teaching of Freud is that of a strict mechanist and determinist, and as a philosopher altogether gloomy and pessimistic. Even the Behaviourists are not uninfluenced by the sense that all reactions are conditioned by circumstance and beyond control.

With such views enunciated with an overwhelming volume of fact and thought from the theologian, the

philosopher, the biologist, and the psychologist, what remains of the idea of free will? Where is there any freedom for us? We are conditioned from our birth, and even before our birth. The sins of the father are indeed visited upon the children, and the achievements of the fathers are the birthright of their sons.

Nevertheless, and in face of all this accumulation and summation of facts, man shrugs his shoulders and goes on his way convinced that he is free. Free to choose and free to do or not to do. He is like Sampson in the toils of Delilah. She bound him with green withes, but he broke them as a thread of tow is broken when it toucheth the fire. She bound him with new ropes, but he broke them off his arms like a thread. She wove the seven locks of his head with the web, but he went away with the pin of the beam and with the web.

Our own consciousness tells us our wills are free. That consciousness is as much a part of the natural history of man as the observations that birds fly and fishes swim. Not only do we realize and live on this belief ourselves, but we assume it is true for others. The prisoner at the bar who pleads not guilty on the ground of predestination, determinism, or necessity does not escape; at best his plea will serve to persuade a kindly judge to defer sentence so that the mental state of the prisoner may be inquired into.

Planck, the physicist, says: "It is a dangerous act of self-delusion if one attempts to get rid of an unpleasant moral obligation by claiming that human action is the inevitable result of an inexorable law of nature. The human being who looks upon his own future as already determined by fate, or the nation that believes in a prophecy that states that its decline is inexorably decreed by a law of nature, only acknowledges a lack of will to struggle and win through."

The conclusion of the whole matter has been well put by Locke: "I cannot have a clearer perception of anything than that I am free, yet I cannot make freedom in man consistent with omnipotence and omniscience in God, though I am fully persuaded of both as of any truth I most firmly assent to; and therefore I have long since given off the consideration of that question, resolving all into the short conclusion that if it be possible for God to make a free agent, then man is free, though I see not the way of it."

## MAN

What is this that I am? This man that I know?
What made me and shaped me and keeps me aglow?
What past came I from and where shall I go?
What fills me with zest, like a strong river's flow,
For toil and for stress, for smart and for sweat,
Ne'er turning nor halting for blood-chilling threat,
As I strain for the goal that's ahead of the herd?

## *Man*

I fly through the air as swift as a bird
In a terrible, roaring, tempestuous flight,
Nor lightnings nor storm nor hail can affright,
Nor checked by a crash, blind earth-dashing crash,
That shatters my wings to the flimsiest trash,
But mounting again with a daring disdain
I win the high air again and again!
I swim like a fish, I submerge like a whale,
Deep down in the womb of the ocean's dim vale;
I ride the wide seas' tumultuous wave
With a fleet of great ships no winds can enslave.
I girdle the earth with a thundering pack
Of houses awheel on a glistering track.
My thoughts I transmit with the speed of a dream
From north to the south by invisible beam,
And can see what is there in the lands of the west
By a shake of the air that obeys my behest.
I delve in the earth deep into its crust,
I gather the rocks, stamp them finer than dust,
Compound their dull ores and fire till they blend
Into steels hard as gems yet lissom to bend;
The powders I mix will blast in a flash
Of thunderous roar that earth gods abash.
I pile up my dwellings sheer into the sky
For heights that make Babel no more than a stye;
And make the dark night as bright as the day
With engines so cunning they seem to be fay.

These things can I do, this man that I am!
What then is this man—this thing that I am?
Am I god born of earth to rule and to reign,
To show that the mind is born of the brain?
Am I god to create, and god to remove

The bars that would hinder the things I approve?
What is this that I am, this man as I stand
The master of air and of sea and of land?
Before me there stands another like me,
With a mirror in hand, as deep as the sea,
Clean polished and clear; and down in the well
Of its luminous shade there shapes like a spell
The past I would see, the fount I would know—
I shrink from the view with a heart-stabbing throe,
For there in the depth my ancestors lurk,
A long line that dwindles and fades in the murk
Of æons of years that gave birth to the least;
For the vision unfolds no god but a beast!
A creature of passions, of love and of hate,
Grown out of the little with no sign of fate.
Dumbfounded I gaze on the scene I have raised,
For he with the mirror's myself I had praised!

Just then a low slant of the sun seemed to warm
The face of the mirror, and light up the form
Of others to come in the time yet unborn,
And these showed the features of one we adorn
With the name that he claimed as his title-in-chief
Son of Man, Son of Man, though 'twas held past belief.

# IV. THE PROMISES OF RELIGION

## IV

## *The Promises of Religion*

RELIGION promises its disciples certain boons. These promises are common to all forms of religion. The terms in which they are offered may seem different, but in their essential characters they are the same. Religion promises: answers to prayer; the doing of wonders; freedom from ills; the forgiveness of sins; and, finally, life after this life. Of the significance of these offers there can be no question. They have been the stay and the comfort of untold millions, they are potent to-day, and there can be no doubt that they will be so as long as man exists upon this earth.

What has science to say to these promises? The prophets of religion have heard these things in the secret places of the heart, and have proclaimed them to the peoples as the word of the Lord. Has science found in its investigations anything comparable to them? Do the findings of natural science in physics, biology, and psychology conflict with or do they confirm the promises of religion?

### ANSWERS TO PRAYER

"Ask and ye shall receive." The child in years and the child in culture regards this precept literally.

The child asks God for a toy, for some pleasure, or for a fine day for the holiday. He wants these things and asks in confidence for them. The savage prays in the same manner to his god or gods for a good hunt, for good crops, for rain in drought, or for victory over his foes; and he bargains with his god and offers the treasures of his skill or of his body for the benison he desires. In all this he is scrupulous to exercise the most meticulous care in the forms and terms, the hour and season in which he prefers his request. These features of prayer are still widespread even in the most cultured circles. Recently I listened to the broadcast of a service from one of our cathedrals. It was beautiful. The singing was most moving. The prayers just what one would wish to offer. But the reiteration of an identical formula at the end of each prayer seemed to lower the level and fineness of the aspiration. The recitation of the Lord's Prayer was a notable exception.

The "fundamentalist" holds firmly to the belief in the efficacy of direct and purposeful prayer presented in the form of specific requests for objects of material desire, and he is prepared to cite in proof of his belief numberless instances of noteworthy answers to prayer. Some of these are impressive, others are naïve and even amusing. There is an orphanage at Bristol whose guardians are of this type. They issue no appeals and no begging letters, they do not advertise their claims, yet they

have always received enough support to feed and clothe the children in their care and to pay the rent and the rates. When funds are low and short measure is in view they fall upon their knees and ask God to supply their needs, and the need is invariably met. An incident that made some stir a few years ago amongst a certain group of simple Christian folk affords a typical instance of an alleged answer to prayer, and the difficulties inherent therein. A company of them were assembled at a seaport to wish God-speed to some of their number who were leaving for foreign parts as missionaries. Their spiritual conversation and exercises were so uplifting and refreshing that they longed that the time of farewell might be prolonged. One fervent spirit prayed earnestly that the boat might be delayed—and hey presto! news came that the liner had fouled her propeller, so that her sailing was delayed! This summer, during the long drought, *The Times* published some letters in which the writers urged that prayers for rain should be offered in the churches, and one writer said that the day after the Bishop of London had offered such prayers there was a break in the drought.

Such records as these might be multiplied indefinitely. They illustrate the feeling that somehow by prayer a power may be called into action that otherwise would not be so exercised. In the child there is a touching naïveté, a trustfulness that years

sooner or later dispel, and as parents we almost regret the change though we know that it must be so. The child asks his father for what he wants and he does the same to God. The parallel is complete in his mind. Later he learns that he must work also if his wants are to be supplied, and he learns also the way to use the right means to this end. The savage has an inkling of the same idea, hence his use of "rites" of magical power. Extended observation shows him these "rites" are not enough. No "rites" will override the seasons. He learns to work with them. Even peoples in lands where the whole atmosphere is saturated with reliance upon rites learn this lesson. In a recent book on life in China is described a great trek of the farmers from the fertile fields of the Yangtze valley to the hard-bitten north "beyond the Wall". Asked the reason for this move from his centuries-old farmstead a peasant replied:

"Thatch your roof before the rains; dig your well before you are thirsty. We flee from the wrath of the Three of the Midlands—The Yangtze, the Yellow River, and the Canal. Shamefully neglected for more than two decades, the Three are angry. They are not satisfied with a few bright toys flung into their waters to a mythical dragon at festival times. The historical annals record more practical appeasement. In the past engineers have coaxed the Three into good humour, returning to them

part of the riches received from the Midland harvest; they dredged canals, built and repaired dykes, and helped the Three control the summer rains. It is now twice ten years since the engineers went away, and we flee from the wrath to come." In a few months news came of a catastrophic flood in the region they had fled from.

The efficacy of the prayers of the directors of the orphanage lies in the fact that their attitude appeals strongly to the minds of the like-minded so that these are constrained liberally to support the institution. That the stoppage of the liner could not have been held by the missionary gathering to be due to their prayer is clear, else they would have been constrained as honourable men to offer to pay demurrage on the ship, and there was neither record of this nor of any claim by the shipowners.

Experience shows that prayer is effectual when it is directed on lines of law. To ask for a passage through a river and fail to look for a ford or make a bridge is absurd. To ask for rain when water is wasted and lands deafforested is surely impious. To ask that water may run up hill, and at the same time fail to use the power of an atmospheric pressure through a pump or the water-lifting wonder of the ram is stupid.

What then remains? Some would reply—nothing. But this is not so. There remains the underlying spirit that detected the sources of water supply and

devised the pump and the ram to serve the desired end. Here is an example of the search for laws upon which successful action depends and also of the desire and purpose to put one's own will and intention into line with these laws. In that basic sense the old tag *orare est labore* is true. But there is more in it than that. It is not the doing itself that constitutes the prayer, it is the spirit in which the doing is done. To do because we must is no prayer. To do because we put our whole will into the doing may be prayer.

Prayer is sometimes a cry, an entreaty, an exclamation wrung from the lips in a moment of supreme agony. I have heard many prayers, some crude but full of fervour, some eloquent and in perfect phrasing. None of these, however, seemed so much a prayer as those I heard when a student on "externe duty," the prayers that were in the sobbing cries of the women in the throes of maternity; they were singularly brief and alike in their terms.

Prayer is the expression of the personality of man. It is an attempt on the part of human beings to align their minds, their purpose, and their actions with the spirit of the universe so far as this is known to them. The spark of divinity in man glows in the rays of the divinity in the universe. Warmed and thrilled by the uprising of this mysterious influence within himself man seeks to give expression to his thoughts, and so he prays, just as he creates

music and pictures and sculpture. In the ages past our pre-human forbears gave vent to uncouth sounds to indicate their pleasure in each others company, and these sounds time and cultivation have polished into words of delight and endearment to those whose ears are attuned to them. Similarly man seeks to give conscious, intelligent expression to what he feels in even more subtle things. It is a deep need of his being. He must pray. For prayer is a law of his being.

The psychologists have with good reason given consideration to the meaning of prayer. Some have bluntly dubbed it self-hypnotism, or auto-suggestion. They assert that it has its beginning, continuing, and ending within the individual's own mentality, and has no conscious or unconscious association with any other form of activity human or divine. They assume that it is nothing more than an example of that transient phase of self-suggestion which was boomed by M. Coué, in which the self-practitioner of the art reiterated orally or mentally the phrase "every day and in every way I am better and better." Or else that the habit of prayer is merely equivalent to the strange monastic practice in which the devotee finds the height of spiritual achievement in a mystic and silent contemplation of his own navel.

Such rough-and-tumble methods of handling a great phase of human activity will not do. It does

not meet the subtleties of the situation. It is altogether superficial, as is recognized by yet other psychologists. Prayer is an activity of the mind just as is creative work, and in each the man feels a strong influence of "other-worldliness." Rivers, of Cambridge, has emphasized the fact that men in all their creative work seem to feel themselves in the grip of some power and urged by some force which they cannot explain. Dr. William Brown, of Oxford, another distinguished psychologist, has turned the tables on the scoffers, for he insists on the community of life and spirit, and on the basis of this states in reply to the theory that prayer is auto-suggestion that it would be truer to say that all auto-suggestion is prayer, an appeal to the common source of life in every soul.

Prayer has as wide a range in its expression and meaning as human life itself. In the lowest ranges of intelligence it may be no more than a mere asking for benefits. But early in the story of man, as shown in the documents of antiquity, it is clear that it had come to mean much more than this. Indeed it had often become entirely divorced from any thought of material gain. Just as the child takes the hand of his mother as they walk side by side, and feels a subtle and inexpressible sense of oneness in a contact so simple and so natural—a feeling which includes comfort, assurance and

security, and also something much more and very different from all these—so it is with a human being in prayer. Just as a friend feels something for and something of his friend as they move silently on their way, or even as one of them thinks of the other when they are far apart—so it is with a man in prayer. The man who has caught the least touch of the spirit of religion experiences something of that sense of communion with some Thing, or some One, or some Other than the mundane. He experiences this most clearly and nearly in prayer, and it is that sense which makes prayer for him.

It is this that makes prayer wholly other than a mere soporific or a comforting titillation of the mind. From its very nature it is one of those phases of human activity which is truly felt or experienced, rather than formulated in the dry terms of words. To my thinking there is no finer, no better, no more eloquent and no more true word-picture of the meaning of prayer than is to be found in the opening verses of the hymn of James Montgomery:

Prayer is the soul's sincere desire,
  Uttered or unexpressed;
The motion of a hidden fire
  That trembles in the breast.

Prayer is the burden of a sigh,
  The falling of a tear,
The upward glancing of an eye
  When none but God is near.

### THE DOING OF WONDERS

Wonder working and miracles follow close upon the cruder aspects of prayer. Just as the savage thought his rites had magical power over the forces of nature, so he believed in the magical power of his witch-doctor to command these forces. If the witch-doctor did not claim these powers he would command no following. He is obeyed because he is thought to have residing within him some unique power of compelling the winds and the rain, the spirits of evil and of good, and in particular those that will secure the fulfilment of his clients' desires. The power of working miracles has long been held to be the mark of divine and spiritual gifts. The Bible is full of such stories told with a simplicity that is captivating. But it does not take much knowledge of science to be sure that these alleged miracles never in fact happened. They are the fanciful romances of folk-lore. There may be some kernel of fact in some of them, but this has been buried under fanciful exaggerations and additions, and so masked beyond recognition. We are familiar with the ease with which some perfectly natural happening becomes, as it passes from teller to teller, magnified both in its occurrence and its significance. Each teller unconsciously enhances the picturesqueness of the story, until it becomes a legend or a miracle. The uncommon and the exceptional are

mysterious, and the mysterious is thought to be miraculous. I had an early and amusing experience of this when investigating the temperature of the inner lining of the eyelids in various states of inflammation. The unfamiliar use of a peculiar form of clinical thermometer worked wonders! The patients knew that their eyes were sore, and that something was done to their sore eyes. They came to hospital expecting to be bettered, and here was something that must better them, so they felt and asserted that their sore eyes were bettered. But the thermometer, of course, had no healing action. The use of a suitable germicide would have had such an action, and this usage is a wonder, though since we understand its working we no longer describe it as a miracle.

A miracle to be a miracle must be contrary to known laws of nature. A wonder may be and often is the direct application of these laws. What is more wonderful than a light, the light of a tallow dip or of the blazing neon lamp? What is more wonderful than the hearing of a familiar voice from the distance of many miles by means of wireless radiations? These would be miracles did we not understand them, at least to some degree. Of miracles the tersest and truest comment I have read is one recorded to have been made by Samuel Galton, the celebrated Quaker, and sometime a pupil of Dr. Priestley at the Warrington Academy.

Once the question of miracles in the Bible was introduced: "It is contrary to universal experience that miracles should take place," said he. He paused for a moment, playing with his eyeglass, then added: "But it is according to all experience that men should lie." A more charitable conclusion would have been—it is according to all experience that men should be mistaken or should exaggerate.

We are apt to forget that in former days there was nothing out of the way or incredible in the story of a miracle. Men expected miracles to happen. Their knowledge of the uniformity of law in nature was dim. In the dim light of unreason anything might be expected, and their expectations were suitably rewarded. The mysterious became the miraculous. That miracles should be commonly associated with all religions is but natural, for religion has an ancient history. These stories of miracles are the trappings which fall out of use with growth, the small clothes of childhood. Nevertheless the essential idea of all religions may be as living in the adult with his larger garment of thought as in the child with his short frock. Stories of virgin births, the raising of the dead, the healing of the maimed, the blind and the halt, of beasts speaking the language of men, and of portents in the skies, are not peculiar to any one religion, they are found in many, or in most. If these stories were not found

in these old records we might well doubt their authenticity. The stories date the documents as effectively as the hall-mark of the Goldsmith's Company does our silver. In this sense the stories are no more blemishes in these records than are the impress of the dies on the smooth surface of some priceless beaker. Provided always that those who teach the young deal truthfully and faithfully with such stories.

Religion has its undoubted miracles, far more wonderful and impressive than these old stories of physical marvels. The redemption of the sick in mind and body wrought by the beneficent influence of its exemplars, its good Samaritans and its heralds of righteousness, are miracles far grander than these, they have achieved wonders beyond the dreams of ancient or medieval thaumaturgists. There is a story I heard in my youth which is to the point. A distinguished American divine, by name of Dr. Pentecost, undertook an evangelistic tour in India. After one of his discourses on the truths of Christianity, an old and saintly Brahmin asked leave to put a question. He said: "I have read your Gospels often, and I read therein that your Master did many miracles, and that He said: 'Verily, verily, I say unto you, he that believeth on me, the works that I do shall he do also; and greater works than these shall he do; because I go unto the Father.' Why then do you His disciples work no miracles?" In

reply Dr. Pentecost put his hand on the old man's shoulder and turned him about so that he saw through the window the distant view in which was conspicuous a great missionary hospital. The old man bowed his head and said: "It is so."

There are some who still believe in the miracles of "faith-healing." We hear of wonders performed at Lourdes and elsewhere. It is granted by all that the power of personality over the weak of mind and over the weak of body through weakness of mind is undoubted. Subjective conditions which simulate disease, and may indeed induce disease, can be ameliorated by the impress of the stronger mind, or the awful influence of some mysterious shrine upon the weaker and more impressionable. But the alleged extension of these "cures" to organic changes is a fiction. In such alleged "cures" investigation shows that the diagnosis has been inaccurate, or the real trouble has been merely masked by an evanescent hopefulness, blessed whilst it lasts, but ending in the return or perhaps in the exaggeration of the mischief.

In this connection I cannot do better than quote from the sermon preached by Dr. Garbett, Bishop of Winchester, at the Annual Religious Service of the British Medical Association at Bournemouth this year. The Bishop has been chairman of a joint committee of parsons and doctors considering faith-

healing, so that his judgment is weighty. In his sermon he asked: "What was the special contribution which Christianity had made to the work of healing?" And he replied thus: "While Christianity was expanding, the old civilization of the Greek and Roman world was collapsing beneath the assaults of the barbarian tribes from the north. Within a few centuries the ancient learning and science were completely submerged, and the knowledge of medicine based on observation was swept away. In the midst of the confusion and bewilderment men turned to the Church to supply their necessity. Anointing with oil and the relics of saints were held to convey physical healing as well as spiritual blessing. But experience presently showed that neither unction nor visits to shrines could be relied upon as methods of bodily healing. Grave dis-service was done when it was claimed that the Church had been given for all time some of the special gifts of physical healing to be exercised by some of its members independently of suitable training and scientific qualification. Nowhere could he find any evidence to confirm the sensational claims often made by those who had conducted missions of healing. The relation between Christianity and healing was built on surer and nobler foundations. Christianity demanded from its adherents a profound and comprehensive compassion for the poor and suffering. Even Julian, the Apostate, was struck

by the far-spreading charity of the religion he hated. Hospitals and infirmaries sprang up everywhere as Christianity extended. In yet another way Christianity had had a direct influence on healing. It had always taught the rationality of God. Science was only possible when it was believed that there was an intelligible connection between cause and effect, that there was unity in nature, that what was true one day would not be false the next. This belief sank into the western mind because of the Christian teaching of the rationality of God. Because God was reason, as well as power and activity, it was possible to penetrate some of the mysteries of the universe and find the key to some of its secrets."

### FREEDOM FROM ILLS

Religion, in some of its phases and periods, has promised freedom from various ills to its followers. Some of these promises have been closely related to magic in the provision of charms, mascots, phylacteries, sacred relics, images, and symbols, or in the recitation of mystic words. At other times, in contrast, religion has swept away all these mechanical devices as vain practices, and has bidden men rely solely upon the promise of good to the good. Yet again, there have arisen enlightened teachers who have taught that the way of the righteous is not easy, but strait and difficult. The Psalms are full of promises of good to the good.

"The righteous shall inherit the land, and dwell therein for ever. . . . The law of his God is in his heart; none of his steps shall slide."

"The Lord is thy keeper: The Lord is thy shade upon thy right hand. The sun shall not smite thee by day, nor the moon by night."

The drama of Job is evidence that the inevitability of this sequence of good to the good and bad to the bad was recognized as not always borne out by the facts of life. Job was "a man perfect and upright and one that feared God and eschewed evil." Yet he suffered the direst calamities in his goods, in his family and in his own body. To aggravate his ills his friends in conference told him that all this was evidence that he was an evil man: "This is the portion of a wicked man from God." But Job maintained his dignity even in face of the added loss of his friends' respect: "God forbid that I should justify you: till I die I will not put away mine integrity from me. My righteousness I hold fast, and will not let it go: my heart shall not reproach me so long as I live." The drama is played out, but no answer is given to the problem.

The writer of Ecclesiastes, that shrewd worldly-wise man, said: "All things come alike to all: there is one event to the righteous and to the wicked." Jesus taught the same. He based his injunction to His disciples "love your enemies," on the ground that "God maketh His sun to rise on the evil and

the good, and sendeth rain on the just and the unjust." Further, He told them that "in the world ye shall have tribulation."

Countless generations have believed that the pious man received gifts from the patron of the pious, and not the least of these was health and freedom from ills. "My son forget not My law but let thine heart keep My commandments: For length of days and long life, and peace shall they add to thee." There was also the companion belief that sickness was the punishment of evil doing, as witness the dramatic stories of Gehazi, and of Elymas the sorcerer.

In medieval and later times both beliefs were current. The legend of the Jackdaw of Rheims is a vivid presentation of them. They were so strongly held a generation ago that they checked benevolence, for there were many hospitals in this country whose rules definitely excluded from admission sufferers from venereal disease as persons justly and providentially punished for their immorality and sin. But some denied the sequence. The words of the Preacher are emphatic. "All things come alike to all: there is one event to the righteous, and to the wicked; to the good and to the clean, and to the unclean." Jesus also repudiated the second sequence in His answer to the question of His disciples: "Who did sin, this man or his parents, that he was born blind?"

When disease was a mystery broad generalizations of causation were natural and popular. Disease was an evil, therefore it must have sprung from evil. There were particular and indisputable proofs to hand. The night roisterer suffered from morning headache. The habitual drunkard was clothed with rags. A short and "merry" life is a true correlation. Babes are born blind and blinded at birth because their parents sinned. Many more than Gehazi have been afflicted with gross skin diseases from the unwise acquirement of infected clothes. The good and clean do escape evils that plague the unclean. The careful do escape accidents that befall the careless. Even epidemic diseases will pass over the wise and slay the foolish.

What part does religion play in this? How far does it encourage goodness and cleanliness and therefore make for health? To answer this we must needs define our terms. For this purpose I will take religion to mean a way of life, a way based upon the best a man knows; and health his reaction as a living organism to his environment. If these definitions be true, it is evident that there must be for every man a close connection between religion and health.

His religion may enjoin good habits, and his health be good. His religion may teach bad habits, and his health be bad. The eastern Jew whose

religion forbade him to eat the carcass of the scavenging pig escaped trichinosis. The Hindoo who is persuaded that the highest act of religion is to drink the fouled waters of the sacred Ganges dies of cholera. Further, the man whose mind is at peace in the assurance of purpose in life will preserve a balanced reaction to physical environment, whilst the man who lacks this conviction of purposefulness will be liable to recklessness and irregularity of conduct which will disturb the balance of his physical reactions.

There are modern cults which have run this proposition to an illogical absurdity. They say: Think rightly and all will be right; and, all sickness is the product of wrong thinking, and can be cured by right thinking. As generalizations these aphorisms are false, though in particulars they are true. No thinking will prevent the falling chimney-pot from cracking the pate of the luckless wayfarer, and no thinking (save that of the doctor) will mend that broken head. But in so far as for some minds an assured purpose is lacking, or unattainable, a policy of make-believe will bring relief from fantasies and phobias that if unrelieved would produce functional disturbances and, eventually, organic lesions.

On balance, religion as a guide to the way of life is the best security for health of mind and body. Certainly the physician to the insurance company would give the preferential rate to the

pious (though not to the fanatic!) rather than to the impious.

Pain as an index of evil has been variously assessed. Butler said: "poets by their sufferings grow"; and Shelley:

> "Most wretched men
> Are cradled into poetry by wrong:
> They learn in suffering what they teach in song."

James Hinton, a surgeon of distinction some years ago, wrote a book, *The Mystery of Pain*, which is little less than a glorification of pain. In the conditions he cites: "It not only passes into the category of good things, but it becomes emphatically *the good*."

There is no one who has suffered agonizing pain—pain that twisted the very vitals of his anatomy, that made the skin sweat though cold and white, that kept on and on until it seemed that there could be no end to it and nothing worse to fear—there is no one who has suffered such pain (and there are many) who will ever forget the sense of rhythmic swooning that came, wave after wave, as the contents of the physician's hypodermic syringe took effect and the pain faded away. There is no one who has gone through such an experience who will not say without reservation: Pain is damnable, and the relief of pain a beatitude. We might sing:

> Blessed are they that cause pain to cease; for it shall be counted to them for mercy.

In the face of such experiences as these what are we to make of the poets' laudation of suffering and Hinton's praise of pain? If these conclusions were right it could be argued that the infliction of pain is meritorious—the cruel man, the wife-beater, or whatever be held the acme of cruelty, is therefore virtuous. The self-torturer, the horrible flagellant, becomes an angel of light. Whereas the discoverers of chloroform and the whole range of anæsthetics are destroyers of the hope of advance for mankind, instead of being, as we fondly hoped and generations have thought, men of God; as witness the saying of the writer of Ecclesiasticus:

> "The Lord hath created medicines out of the earth; and he that is wise will not abhor them. . . . With such doth he heal men, and taketh away their pain."

Without doubt some have turned evil into good, and have transformed in their minds physical and mental pain into something fine. In the fashion of the day they have sublimated their pain. But it is doubtful whether the pain experienced is the stimulus to this effect, or whether this stimulus is not in reality the febrile process of which the pain may be an indicator. Fever produces toxins, these in moderate doses act as other intoxicants. They heighten imagination for a time. It is probable that we owe some of our finest imaginative literature to such stimulation. But I doubt if we owe any con-

structive work to it, for this demands a steady perseverance in well-doing to which a toxic state is inimical.

There are certain observations which tend to show that nature detests pain. We seem so constituted that we remember pleasurable sensations and incidents and tend to forget unpleasant ones. That this is true anyone can verify who has kept a faithful record of a journey in which he depended upon his physical powers for his movement, say in a walking or cycling tour. I have just done so by reading a diary of a cycling tour done years ago on what was little more than a bone-shaker. My memory retains vivid recollection of sunshine, beautiful scenery, fine buildings, and good companions. In the diary is found a record of long solitary riding over stony roads, against high winds and heavy rain, with a succession of dirty inns and poor food, and sore and stiff limbs. Wayfarers who would gossip were few, and the country folk were indifferent or fearful of the stranger and his strange machine. Why this difference between recollection and fact? The recollection was the truth, but not the whole truth. Memory had cherished the pleasing and forgotten the unpleasing. So it is with many other conditions. The small boy who has suffered the pangs of colic still dares to eat sour apples. Even the adult forgets the last attack of gout when at the feast. When I did maternity work I heard a score and more of women, graduating in the

painful school of maternity, swear by all that was holy "never again!"—and in half an hour all was forgotten in revelling in the satisfaction that they had gotten a manchild of the Lord.

There is no doubt that physiological processes strive to render us less susceptible to pain. The callosities that grow over parts that are liable to injury are evidence of this. But it is also evident that this process could not be greatly extended, for pain is a warning of evil, and to withdraw it would be disastrous. The eye that ceases to be acutely sensitive to touch soon ceases to be sensitive to light. Recent researches into the nervous apparatus of pain tend to show that pain is not a mere disturbance produced in nerves of sensation, but that it has its own apparatus, its own nerves, and probably its own receptors. There is now no doubt that in the skin the pain apparatus is separate from that of tactile sensation. It is a protective mechanism, and more highly specialized than appears at first sight. Pain therefore has its uses, but there is nothing good in that; it is no more than the expression of the wrong. The fact that there is something wrong is the dominant consideration, not the possible utility of the pain caused by that something. Some might argue that the existence of anodynes in nature is evidence that kindly nature provides for the relief of pain. But that argument is two-edged. I have seen the nettle growing close to the poppy.

Hinton seems to imply that an experience of pain is a necessary preliminary to the experience of and appreciation of comfort. It is doubtful if this is wholly true. There are some eupeptic persons whose bodily functions are so nicely adjusted that they scarcely recollect an experience of pain, yet they are fully conscious of their well-being. Even the dyspeptic in a period of good health recognizes a feeling of satisfaction, and that this is not a negation of pain, but a positive sense of comfort which he enjoys without any conscious reference to the remembrance of past pain. Hinton lived and worked when the medical armamentarium of anæsthetics and analgesics was poor. His operations must have caused acute pain. The stoic in him said, what cannot be cured must be endured; the idealist rejoined: what must be endured should be glorified to make it endurable. He tried to do for pain what Milton tried in other realms, when he wrote:

> "I may assert eternal Providence,
> And justify the ways of God to men."

This attitude has a fine side to it without doubt, but it has also a dangerous side. It may make for cruelty or hard-heartedness. It was this that made tender-hearted Christian ministers of religion denounce the discoverer of the uses of chloroform, for assuaging the pangs of childbirth.

There is yet another series of observations which

show that nature is in some way hostile to disease and pain: the modern discovery of the phenomenon of immunity. It is now known that plants, animals, and man can be rendered immune to diseases. By the selection of certain resistant strains in plants and by the protective immunization of animals and man there can be secured freedom from disease. Strains of wheat that are immune to rust have been grown. Artificial immunity can be secured against distemper in dogs, rinderpeste in cattle, and typhoid, diphtheria, smallpox, and other diseases in man. These achievements have been obtained by a long series of researches into the conditions of these diseases, and the application of the laws so discovered. They are significant findings.

Man will never cease to suffer pain, and to hate pain, and he will banish it whenever he can; when he cannot do this he will sublimate it, try to turn it to some good end. But for all that, of pain it may be said: "It must needs be that offences come; but woe to that man by whom the offence cometh."

Suffering and pain are part of that great problem, the problem of evil. If God be a good God and Our Father, why are men subjected to such evils as pain and disease, and to the horrors and calamities of war, of famine, of pestilence, of storm, and of earthquake? Why do the policies of marine insurance speak of some of these disasters as the "Acts of God"?

There are two possible clues to the solution of this problem, or at least to some understanding of it: 1. A comparison of the idea of a Heavenly Father with the practice of an earthly father; and 2. An examination of the conditions of some of these catastrophic evils.

On the first of these lines of enquiry: There is a very general assumption that the claim of Jesus that God is Our Father implies that God is (if I may put it so) soft-hearted. A reference to the doings of a good earthly father will show that there is no justification for the assumption. We, as fathers, know quite well that some measure of training of a Spartan character is necessary for the formation of character. The discipline of school is a limitation of freedom, and some lessons are boring beyond measure; but both must be endured for the good in view. Even in games the running of risks is to be encouraged. Sir Clifford Allbut, sometime Regius Professor of Physic in the University of Cambridge, once said that no game was fit to be played by an undergraduate which did not involve risks to life or limb. Again, after school days, if a son joins his father in work, the wise father does not perpetually guard and restrain the action of his son, but allows him an increasing freedom of action, even at some risk; he knows that only by such means can the lad reach the stature of a man. Jesus said to His hearers: "if ye . . . know how

to give good gifts to your children, how much more shall your heavenly Father." Amongst these good gifts we must include teaching them to endure hardness. It seems to be a rule of life, that a certain degree of hardness and risk is necessary to the achievement of quality. But it will be said: this is in itself part of the problem of evil. Why should hardship and risk be necessary to the formation of character? That is a question to which I think there is no answer. It is no more answerable than the question: What is life?

Evils of the catastrophic order, "Acts of God," cause much more disturbance to the mind by their suddenness and apparent unreasonableness. How can a good God allow war, pestilence, famine, storms, and earthquakes to befall and overwhelm hapless man? The older theologians answered that these calamities were punishments for the sins of man. Jesus denied this, when questioned about the tragedy of the time, the fall of the tower of Siloam upon its inmates. There are few who will accept such an answer now. Yet if failure to observe and obey the laws within the natural order of things be a cause of, or involves a risk of exposure to, any of these calamities, then there is much truth in the idea, and a corresponding truth in the idea that wisdom is a means of avoiding evil.

If it be possible to show concerning one of these calamities that the conditions governing it are

orderly, and that the harmfulness of it is avoidable, then there is no problem of evil so far as that particular calamity is concerned. It is possible to show not one only, but half a dozen forms of these old-time calamities that are avoidable by natural means.

Famine need now never happen to any people. The scientific advancement of agriculture is such that there is always food in abundance in the world. If the crops in one country should fail through drought or flood, intercommunication is such that provision can be and is hurried to the famished people. If the stories told of the millions starved last year in the rich lands of the Ukraine be true, then they are a terrible indictment of criminal negligence on the part of the administration.

Pestilence was held until quite recent years to be the veritable scourge of God. Witness the story of David who, when offered a choice of three forms of punishment, chose pestilence as "falling into the hands of the Lord." To-day there is scarcely a form of pestilence which cannot be and ought not to be under control. Bubonic plague, the pest, or the black death, is now known to be spread by rat fleas; destruction of vermin can stay the plague. Typhus, or gaol-fever, a terrible scourge, is carried by lice; cleanliness can prevent it. Typhoid, the horror of the South African War, was unknown in the Great War, for protective inoculation and the chlorination of the water prevented it. Cholera

ravaged this country less than a hundred years ago. There is a church close to the Marble Arch, London, with an inscription on the tower stating that it was built as a thank-offering to God for staying the epidemic. It is said that a prime minister of the time when asked to order a day of prayer for the cessation of the cholera, replied: "No, go tell the people to clean their back yards!"

So I might go on to tell of malaria, tuberculosis, hookworm disease, leprosy, and of yet others. We know now that an outbreak of pestilence is our own fault, through neglect of our bodies, of our clothes, of our water, of our food, of our dustbins and our middens, of our drains, and so forth.

Of all calamities lightning stroke was held by the ancients to be the direct finger of God. "Be ready, Gods, with all your thunderbolts: Dash him to pieces!" Jove's thunderbolts could be seen stabbing the earth from the black brows of the storm-ridden sky. What other witness was there needed? Amongst the thousand and more maxims of Publius Syrus, who wrote in 42 B.C., there is this: "It is vain to look for a defence against lightning." And so men thought for hundreds of years after him. Now every schoolboy learns how Franklin proved what were the laws of lightning, and how we can with certainty protect ourselves and our buildings. The advance of meteorological science has given us some measure of protection against the effects of storms; whilst

such specific arrangements as the ice patrol in the Atlantic shows what can be done to protect voyagers against the sudden tragedy of a hidden peril. Inhabitants of countries that are liable to earthquakes are learning by experience the means for securing 'quake-proof houses; one wonders if some day the development of seismography will not secure further protection through timely warning.

Such examples might be extended. They show that the risks that we find in nature are sometimes controllable or avoidable, when we know their order or mode of action. We find also that there is reason or order in the phenomenon that presents these risks, at least so far as we have discovered their conditions. We know, for example, the reason for the electrical discharge of lightning, and we may suppose that if we knew more of the others the same might be true of these also. Nevertheless there remains in the mind the memory of disasters, calamities, and catastrophes which were tragic beyond words. Of such was the devastation caused by the eruption of Mont Pelée. In the face of such inexplicable events we can only confess defeat of our powers of comprehension. We do not know, or we know so little.

There remains the problem of evil in human actions. Exhibitions of the tiger in man. Of such is war. War bulks largely in our minds to-day. Yet it is not the worst of evils; as individuals we feel injustice more keenly than any of the effects

of war. War was once the sport of kings and tyrants. Now it is the death struggle of peoples maddened by insidious machinations and propaganda. Amid the darkness of the memories of the Great War and the unrest and weariness of succeeding years there is one streak of light, one hint of hope for the future: the evidence of the horror of bearing the brand of "war guilt." The triumph of reason over superstition is slow, and no less slow is the suppression or sublimation of the tiger in man by man. Voltaire said: "History is little else than a picture of human crimes and misfortunes." But there is probably more truth in the saying of Shakespeare:

> "Men's evil manners live in brass; their virtues
> We write in water."

### FORGIVENESS OF SINS

Forgiveness of sins is one of the most attractive of the promises of religion. There is scarcely a religion which does not offer this boon to its professors. There is no one who is not constrained to echo the words: "We have left undone those things which we ought to have done, and we have done those things which we ought not to have done." Dr. Ernest Jones, the Freudian psychologist, says: "All religion is founded on the idea of sin—i.e. the sense of guilt at not reaching a prescribed standard. Without this idea religion loses all meaning."

The Bible is full of forgiveness of sins, prayers for forgiveness, injunctions to repent that sins may be forgiven, moving narratives of forgiveness. To the candid reader of the Bible there can be no doubt that in the minds of all its writers, from first to last, there was a sincere and unconquerable belief in the forgiveness of sins. The way in which this has been expressed has varied with the age in which it has been written. Forms and ceremonies have been prescribed, through which this forgiveness could be obtained; strange ideas of sacrificial ransom are there, remnants of the childhood of mankind; great schemes of redemption from the overshadowing terror conceived through meditation on the mystery of evil. But beyond all these there are words of a free forgiveness, untramelled with priestly ordinances or thought of a sacrificial compensation: just the free gracious pardon of God to the repentant confessor—"If we confess our sins, He is faithful and just to forgive us our sins, and to cleanse us from all unrighteousness." An outstanding instance of this attitude is the beautiful parable of the prodigal son.

The word "forgive" is a very simple one. It occurs in much the same form in the many tongues of northern Europe. It conveys its own definition—an indication of an attempt to give things their former character—to give them that appearance and feeling which they had before the offence or shortcoming was committed. To forgive is to give

back that which was before. The idea is expressed in many prophetic utterances of the Old Testament: "And I will restore to you the years that the locust hath eaten . . . my great army that I sent among you." Such thoughts are as beautiful as they are deliberate. God will give back things as they were before sin had marred His work.

Forgiveness carries with it the belief, nay, even the knowledge that there is sin. And the universality of the cry for forgiveness, as we find it in the Bible, implies the belief that all have sinned and come short of the glory of God. In the words of the writer of the Epistle of John: "If we say we have no sin we deceive ourselves, and the truth is not in us." Nay more, "If we say that we have not sinned, we make God a liar, and His word is not in us." By the very thought of the denial of sinfulness we sin against God. The Christian ethic claims an integrity of mind that does not allow that only actual deeds of commission or of omission are necessary evidence of sin. The most passing and evanescent thoughts that flit through the mind of man, brought into being by the momentary vision of the eye, or the hearing of the ear, are counted as sin. "I say unto you, That whosoever looketh on a woman to lust after her, hath already committed adultery with her in his heart." If this be true, what man is there among us who has escaped condemnation?

There has been much ebb and flow in man's

feelings of his own worth. At some times his thought of the greatness and holiness of the divine nature has led him to affirm the worthlessness and even vileness of his own nature. At other times there has been an uplifting of his spirit; his belief in the indwelling of God has banished fear until he has realized himself as but little lower than God. Our minds are so constructed that the filling of our thought with some great idea almost always tends to drive us to an extreme which may be fraught with peril for the very integrity of that idea. To-day sin bulks but little in the eyes of many thinkers. Man is a fair plant, full of blossom, and bearing much fruit, and if there be blemishes upon him, is it more than the soil from which the gracious flower sprang? Sin is less a shortcoming than an incident that is unavoidable. Indeed, to some, there is no sin. To think that there is sin is a failure of faith and a falling-away from the high ideal of life. Who then is right? These later thinkers, or the writer of the Epistle of John, and the many that bear witness to the truth of his words?

Our experience of human nature brings with it the realization that temperaments vary as much as physical conformation. The old belief in the "humoural" pathology finds its reflex in our appreciation of the attitudes of our neighbours. Some are good humoured, and others are ill-

humoured: some sanguine and some melancholy. These characters have their parallel in the terms of the present subject. There are some happy souls who are so "healthy minded" as to be unable to feel that they or their deeds fail in anything that should be expected of them. They live always in the joy of the present, and reck little of the road they have passed over, the steeps they have climbed, or the perils that are to come. There are others who are for ever checking their progress by the investigation of what has been, what might have been, and what may be; and their minds are depressed with the consciousness of a failure to attain, and fear of a false step in the ascent of the Hill Difficulty. These differences are temperamental. They are inherent in human nature, and I doubt if they will ever be smoothed out. They may be traced to the very beginnings of human thought and experience. Innocence as a basis of happiness is of doubtful stability. The time of man's innocence was the time of his unconsciousness. So soon as he became conscious of himself, that is so soon as he began to think, he became conscious of the manifold forms of life surrounding and pressing upon him. The realization filled him with terror, a terror akin to the fear of the child for the darkness which wraps him round, touches him at all points, and cannot be fended off by deed or thought. To the primeval man, the stab of a nettle revealed

an invisible hostile power, the stone that overthrew his faltering steps was an instrument of a malignant agency, the thunder of the air was a terror beyond all endurance, and the eyes of the midnight sky exposed his nakedness to the universe.

Primitive man was no noble creature. The "noble savage" is the figment of imagination out of touch with reality. The savage was and still is ignoble. Yet there was in him the germ of nobility which has grown under the severest stresses and borne much fruit through the centuries. In the primitive man, fear dominated mind and controlled actions in a slavery more complete than that which the most inhuman of masters inflicted on the body of his thrall. Any doubts on this point would be speedily dispelled by reading a little book, *On the Edge of the Primeval Forest*, written by Professor Albert Schweitzer; who, leaving the art which had been his first love, qualified himself as a physician, and has lived in the heart of Central Africa tending the sicknesses, mental and bodily, of the dark-skinned tribes of that region. It is a book of thrilling interest, and it demonstrates the horror and the bondage of fear, and how man is being redeemed from his bondage by that perfect love which casteth out fear.

Whatever be our natural temperament and the corresponding reaction which it brings to our outlook upon life, whether we be the happiest of the "healthy minded" or the sorriest of the "sick souls"

whose experiences have been analysed with such shrewdness by William James, it is certain that within each of us there is some vestige of the opposite habit of mind. And this vestige may spring up into activity and possibly dominate thought in untoward conditions. There is a very true analogy between mental conditions and physical conditions. A man is a man, and a woman is a woman. But in the study of embryology we find that there is a time in the history of every bodily beginning when there is no differentiation, and that with the differentiation there remain for ever within each body the vestiges of the organs and tissues which, in their full development, make the other sex. Man carries within him the undeveloped insignia of the woman, and the woman those of the man; so that in pathological conditions there may be found a disturbance of the natural balance, and a development of physical characters which are foreign to the particular individual. Even so in the temperament of the individual, there is in the most healthy minded of us some response and some liability to the reactions which are those of the sick soul. Trouble, sorrow, or sickness may bring about these manifestations. Even the discomforts of a common cold may make the most healthy minded feel that he is in truth a miserable sinner, in whom there is no health! There is therefore, for every one of us, a need for that assurance of forgiveness without which such times

as these may, perchance, prove the dissolution of the integrity of the mind and of its fine balance.

To the healthy minded the essays of Emerson are superb in their virile dignity. To the sick soul they are superficial and repellent. To the sick in soul and body there comes a craving for the solace of the words of the penitential psalm. In such thoughts it finds no meanness of spirit, but the source of a renewal through which alone health can be attained. There is a time for man to stand upon his feet erect in the dignity of manhood, and there is a time when it is no shame to humble ourselves to the earth, and to embrace the call to repentance through which there is forgiveness of sins.

The possibility of forgiveness has been denied by some. They have asserted that there is no forgiveness in nature; what is done, is done; and there is no remission. That is a hard saying, and if it be true in fact, on such knowledge as we possess of nature's doings, then the outlook is black for a belief in forgiveness of sins. But is the statement true? For myself I am convinced that it is not true. There may be many appearances which on a first and limited view appear to support it; but there are other facts, amply supported by experience, which lead us to an entirely different view. A few examples may be given of nature's forgiveness—the effort of nature to put things back as they were before the offence was committed.

If there be an injury to the tissues of the body, a cutting wound or the like, there is an immediate effort of the bodily structure for the repair of that injury. The fluids of the body exude in an attempt to close the wound; then the wandering cells of the body collect in and about the wound, bringing with them those chemical processes which are so effective in promoting reactions against an alien invasion; and the fixed tissue cells are stimulated to an activity which results in the speedy formation of a scaffolding, the precursor of a process of repair which ultimately secures a clean white seam in place of the bleeding, gaping wound. In that process there is more wonder and precision than is to be witnessed in the gigantic outworks of the great buildings which we see being reared in many parts of our modern cities.

Delicacy and complexity of tissue is no necessary bar to processes of repair. A lesion of the brain is followed by a process of recovery, so that it is found that neighbouring or related cell-groups endeavour to take over the functions lost by the injury received. The nerve fibres themselves, which stretch out to the periphery of the limbs, show most amazing powers of repair. Immediately on the severance of a connection, there is an outgrowth from the central end of the fibre which seeks to grow down to the lost connection; and it is now a common practice for the skilful surgeon to provide means

whereby a lost section may be bridged by a new growth of nerve fibres, so that a lost function is restored and "the withered hand made whole."

Or again, the body is invaded by a deadly parasite, the bacillus of tuberculosis. It fastens upon the delicate tissues of the lungs, and threatens the very springs of vitality. Even there the body seeks to rid itself of the invader, the reaction which is set up promotes the formation around the invader of an enclosing barrier of tissue, which, after its kind, slowly shrinks in upon its centre, and, like the fabled torture chambers of medieval times, gradually crushes the life out of the encircled parasite.

Or yet again, in that most dreadful of all disease, which is conveyed from person to person by deeds of evil living, and alas, often communicated to the innocent, an infection which penetrates the body to its inmost recesses, bringing corruption and death, which reaches even to the germ cells of the body so that the progeny of the affected ones are born to disease and death, even there is found an effort to restore the former state. I have collected numerous family histories in which there is seen the record first of the destruction of the products of conception, then the appearance of unviable children, followed by those who live but are affected by the disease, until at last the virus is overcome and healthy viable children are born to the parents. Nature has forgiven and restored the former things.

Lest it be thought I confine my illustrations too much to the realm of pathology, let me ask you to look upon yonder pine tree. By the slight crook in its upright shaft there is told a story. Some careless youth broke off the leading shoot of the sapling, and for a time its upgrowth was checked; but another shoot took on the lead, and to-day the tree is tall and straight and scarce bears the marks of the injury. Even the cold earth forgives the injuries done to its face. The scars of war, the ugly trenches which have seamed our countryside, will be gone in a few decades; even now the props have rotted, the barbarous wire has rusted into dust; wind and rain, frost and sunshine are crumbling away their sides; the blown leaves are filling in the depth of the recesses; and the spring flowers, the heralds of a new resurrection, show their tender shoots among them. Even here, nature shows forgiveness; and the laws of nature are the laws of God.

Is it less so with man, who is also a part of nature? Do we not in the swift movement of our city life blunder and stumble against each other in the press of the traffic, do we not beg pardon and receive it with an almost automatic swiftness? And does not the churl who rejects a pardon with gross words render himself an offence? Forgiveness is almost a part of our life. Husband forgives wife, and wife husband; parents forgive children, and children parents; and friend forgives friend; for we all

continually fall short of what we should be, and as we are forgiven, so also we forgive. Even nations forgive, or will forgive in time. And we men are part of nature, and our doings are part of the outcome of the laws of nature, and the laws of nature are the laws of God.

But it may be that the critic will assert that the forgiveness is not proven. That the measure of the mark of the injury remains in the scar of the wound, in the lesion of the lungs, in the family history of disease and death, in the crook of the tree, in the marks on the downs of earthworks of unknown history, in the wounds and bruises of mental encounters even as of physical; and that the reparation is but partial, and the forgiveness incomplete, if at all. That objection will have much or little weight according to the light in which it is examined. To the purblind eye, the scar on the hand, the mark of the wound, may limit and therefore possess the view to the exclusion of the body as a whole; but this is a limitation of sight which is in itself pathological and unnatural. The scar on the hand that marks the site of some old injury is less the mark of the injury than the mark of and sign of repair, of restoration, of forgiveness; even as the bow in the heavens is the sign of sunshine in the midst of the storm. If there were no repair, the wound would have gaped without closing, strange infections would

have entered into it, the hand and the limb would have been rendered useless, and the death of the whole organism would have been assured at no distant time. The larger view, a view which takes into its range not the scar alone, but also the existence of the whole body, assures us that the scar is the sign of healing, that is of forgiveness of the injury and a restoration of the former state and freedom from danger. And so also the thesis might be developed in regard to those other examples that have been cited, and to many more that might be considered. Even of the old-time marks on the distant downs, the same may be said. Those shallow dells, those flattened ramparts which mark some place of some prehistoric encampment, are now covered with turf as close and fine as that found in any part of the downs that has never felt the wound of celt, or stake. The rough places have been made plain; so that now there is scarce depth enough to hide the children who gather in the place of old traditions to play games of joy and happiness. There has been restoration and forgiveness even there.

Would we have more? We would have forgiveness, but would we also have forgetfulness? To forgive the injury and to receive forgiveness are good, but can we, with safety or profit, forget the forgiveness? These old scars are in truth reminders of the forgiveness, and in that sense they are of priceless value, and not one of them can be lost.

Let us endeavour to achieve that freshness of memory which shall be able to call to mind each day, the triumph of nature over injuries that have been inflicted upon her handiwork. There can be no manner of doubt that there is forgiveness in nature, and as we believe in the God whose living influence pervades all things and all nature, so we may believe also in the forgiveness of God.

> "God wove a web of loveliness,
> Of clouds and stars and birds,
> But made not anything at all,
> So beautiful as words."

Amongst all the words of our tongue there is none more beautiful than the word "Forgive." Unless it be that other word, "Love," and love is in its essence forgiving; for love putteth back the hands of the clock and causes all age to pass into nothingness; it repairs the ravages of time and stress and makes youth, beauty, and truth to be the possession of each who shares in it. It is the true giver back of all that was before, even to the renewal of the ideals and inspirations of youth which are the ideals of a golden age.

### LIFE AFTER THIS LIFE

Near two thousand years ago a man in the extremity of his life whispered to his neighbour: "To-day shalt thou be with me in paradise," and

with his last breath cried, "Father, into thy hands I commend my spirit." Another, centuries before Jesus, in pain and grief declared the same unquenchable belief: "I know that my redeemer liveth . . . and though . . . worms destroy this body, yet *without* my flesh I shall see God." The spirit of these great souls has been as a kindling spark to millions of others since their day, not because they have been accepted as authorities, though it has been so and still is so with many. Their power has more truly lain in the revelation which they brought. This hope is in me, and in this hope I live and die, they said. The declaration brought an immediate response and awakening to the realization of an equal hope, until then vague and unexpressed, within the hearts of men.

The belief in immortality is the reaction of many minds to the deepest instinct of their being—a belief that within them is a spark akin to the divine essence that energizes the universe. It is the indomitable assertion of the greatness of life, and its supremacy over all material considerations. A man is greater than a beast because of this. A man is greater than the most marvellous of natural displays because of this. He is greater, even the least of his kind, than the material achievements of the greatest of his kind because of this. He is greater than his own body because of this.

This human reaction to life is one of the phenomena

of nature. It is as much a law of man's nature as is the seasonal migration a law of life for birds. How or when this reaction arose, in the dim distant past of man's origin from lower and less developed organisms, is immaterial to the existence of the phenomenon. Our speculations concerning dreams and fears, spooks and ghosts, magic and spiritism, may or may not be true or probable. They are interesting, but they do not affect the fact of the belief in personal immortality. It is there. It is here. It is widespread in the heart of man. It is almost universal. When great minds have declared the life beyond, other minds have risen in the instant, for we have felt that it is so.

It is inevitable that such a phenomenon should be subject to critical examination. The exaggeration of the belief in the Middle Ages that led to the assertion of the resurrection of the body, was bound to bring discredit upon the underlying basis of the belief. A creed of gross materialism, not even yet extinct, obscured the spiritual idea. The knowledge which physiology has disclosed, of the never-ending changes within our bodies from day to day, makes it plain that the resurrection of the body, the body of to-day, is inconceivable. But that, very certainty, is one of the arguments for the distinction of the individual. Our body of to-day is not our body of yesterday, for it has wholly changed in some of its

most intimate tissues; and yet despite this change there remains the individual, the "I," distinct and personal, older and wiser perhaps, but the same "I."

The challenge to the belief in the future life is not new. The writer of Ecclesiastes voiced it in a mocking epicurianism that bade man enjoy life whilst he had life. Omar Khayyám developed the same theme. The Sadducees disbelieved because they could not free their minds from material considerations. Their love of legal conundrums bogged them in such puerile riddles as to whom would a much-wedded woman be a wife. Some modern scientists have challenged the belief from equally crude reasons. Their predecessors, the old-time anatomists, discovered the seat of the soul in this or that organ of the body, either in the huge liver or the minute pineal gland. Their successors demonstrated the real purposes of these organs, they have unravelled something of the amazing intricacies of the brain and its neurons, and behold there is nothing but reflexes, action and reaction, within! A marvellous mechanism truly, but nevertheless a mechanism of conditioned reflexes, an amœba removed to the *n*th degree, but yet essentially the same. The psychologist has taken a hand in the investigation. He has analysed this belief in personal immortality, and concluded that it is the expression of some sort of inferiority complex, the assertion by man of his greatness when fear has

come upon him lest he be powerless to cope with the overwhelming forces of nature about him; or else a yearning for the wings of a dove to fly away and be at rest!

Admittedly there are many amongst the scribes who are vocal in their dissatisfaction with the world of our daily familiar experience. To dare an alteration of Keble's well-known lines:

> "The trivial round, the common task
> *Don't* furnish all we ought to ask.

It is averred that men are bored with the dullness of life, or alternatively that they are affrighted by the accidents, troubles, and miseries that mark even its sunny days. But most of all there is the feeling that realization always lags far behind our anticipation of what ought to be and what might be. Admittedly all these phases of life are to be found in men's minds, perhaps in all our minds at some periods of experience. But that it is constantly true of the bulk of men there is in my experience little or no evidence. It is true I have heard great congregations of worshippers singing with zest: "Earth is a desert drear, heaven is my home," but in the porch of the church after the service I have found these same folk healthily happy in their social life, and busy in the interchange of their mutual points of happy contact. Of such inconsistencies are we made up! Just so I have

heard six hundred boys in a great public school sing with a magnificent lustiness, that denied the import of their words, "There is no health in us."

The phenomenon of "Accidie," or what might be described in the vernacular of the British workman as "the Blooming 'Ump," which is the alleged basis of the belief in a future life, is not to be found amongst the common people. As an hospital doctor I have seen crowds of folk at their worst, when physical disability would be likely to intensify accidie and make them "down and out." But I have not found this so. There is an ever-surprising hopefulness even under extremes of discomfort. There is no turning of the face to the wall, but an astonishing tenacity of life. There is always hope—"hoping against hope" as the curious phrase has it—and not despair. Often it would seem that the habit of the pessimist who sees accidie abounding is due to an attack of "the Blooming 'Ump" caught by the intellectual's solitary habit of life that much study engenders.

Nevertheless it is true that much of our finest literature and aspiration is marked by a yearning for something better than life as we know it and experience it. We want a world that is still more beautiful than this. We want a life that is more complete; one that has a perfection which we can conceive but fail to realize. So there is a vision of a future, of a Utopia, which this world cannot give,

and a conception of a life beyond this life in which we shall experience and enjoy a never-ending completion. A psychologist writes: "Belief in an after-life displays the features of wish fulfilment. . . . Heaven is the reward of that "at-one-ment." All the unsatisfactoriness, hardships, and injustices of this life will find there their due compensation. It is a returning to "that imperial palace whence we came."

Given all this as a true reading of our minds, there yet remains the idea behind it. It is only a statement of the phenomenon and no explanation of it. This at all events may be fairly said. The idea of a personal life beyond the grave is widely spread. Why should it have come into existence if it is entirely without foundation? Experience seems to deny it. Man dies and disappears and returns no more. Yet the belief or the hope remains. Still with or without reason persists the conviction:

> "Thou wilt not leave us in the dust:
> Thou madest man, he knows not why,
> He thinks he was not made to die;
> And thou hast made him: thou art just."

Our whole thought is tinctured with this great idea, it is so even among the common people who find so much of satisfaction in that life which others might think so poor. Is there any justification for the idea in science as we know it, that is, are there,

on scientific grounds adequate reasons for believing in the continuation of personal existence after the death of the body? Science gives a most definite answer to the question. It is Yes.

It is a fundamental law of physics that matter, as we know it, is indestructible. We may change its form in innumerable ways, but in the new form the original elements persist and can be recovered or re-established in their primitive state. We burn a candle to the socket. It is gone to the sense of sight. The light it gave has flickered out. The darkness seems to show that there is an end of it. But the chemist can demonstrate confidently that all the stuff and substance of the candle continues to exist and can be recovered from the surrounding air. Even the energy displayed in the burning is not lost, it is conserved in other forms. It is true that Jeans, now President of the British Association for the Advancement of Science, writes in his book, *The Universe Around Us*, of the "annihilation of matter." The heat of the sun and stars is so intense that it is conjectured that it could be produced only by the disintegration of the atom. It would, however, appear from further statements in this book that there is a misuse of the word annihilation, for what the writer means is the breaking down of the atom into radiations. Other physicists, of whom Professor Robert Millikan, a former President of the American

Association for the Advancement of Science and a Nobel prizeman, is representative, aver that the reverse process is also in action; that hydrogen is itself being built up in the intensely cold interstellar spaces from the form of energy which is perpetually "leaking out" from the stars, and that from this hydrogen atom the heavier elements are reconstituted. The evidence for this process rests upon the discovery of the cosmic rays. According to these two hypotheses there is on the one hand disintegration of the atom in the intensest heat, and on the other hand re-integration of the atom in the intensest cold. We may leave the giants of physics to fight out this problem. For us ordinary mortals the fact remains that by no process can we destroy common matter, we can only change it; and even if we could disintegrate the atom into radiant energy there would still be radiations.

The significance of these two fundamental laws, the conservation of matter and the conservation of energy, in relation to the idea of a future life is great. Life makes matter live. How we do not know. Sir Oliver Lodge believes that life is something which seizes and uses matter for its manifestations and that it is an entity separable from matter. Professor J. S. Haldane believes that life is inseparable from matter, and that life is matter existing in a superphysical state—the difference between protein as matter and protoplasm as living matter—and that consciousness

as exemplified in cerebration—memory, retrospection, and anticipation—is a supra-superphysical state which cannot be analysed by the chemist or physicist. The idea is somewhat akin to Smut's "holism." Professor L. Hogben will have none of these ideas. He says: "In the light of Pavlov's work we can now envisage the possibility that the methods of physical science will one day claim the whole field of what can properly be called knowledge." For him there is nothing but conditioned reflexes.

Whatever school of thought be proved right there remains the reverberation of these two laws of physics, the conservation of matter and the conservation of energy. If mere matter, dead organic matter, and energy in its chemical and physical forms, are indestructible, is it not morally certain that life, the highest of nature's achievements, must be equally permanent?

To some minds spiritualism provides a supernatural explanation of a continuity of existence and consciousness beyond the grave. For half a century the Society for Psychical Research, a body of dispassionate scientific workers, has been investigating these phenomena. It has sought to apply the rigid laws of evidence to all stories of ghosts, visions, materialisations, and every form of psychical manifestation. Many of these phenomena have been shown to be produced by other agencies than dis-

embodied spirits. Many can be better explained by thought transference. Even when the phenomenon cannot be wholly explained there is the seemingly fatal blemish that arises from its utter triviality. The littleness of it leaves one with something like a sense of shame. True or false, the psychic evidence bears no comparison with the massive laws of physics.

When death comes to man, his body is resolved into its constituent elements, which return to the great store of the world's matter; nothing is lost. Can it be conceived, therefore, that the motive power, which is in and through all his life and thought, which has stamped those material elements and made them seem something other than common clay, is lost, just because it cannot be found? Such a conception would be a contradiction of natural order of the strangest kind, for everywhere we find nature takes the most care to preserve her highest achievements. There must be some solution to the riddle if only we could read it.

It may be that the elements that we know and which make up the more material part of man's body are not the only elements, but that there are wide extensions of elements or their equivalents beyond these known and recognized, and that within these extensions are the materials from which is made up that part of man which cannot be discovered by our physical and chemical analysis;

and that these rarified ethereal elements are as indestructible as any of the more material elements whose combinations we can weigh and measure. The suggestion is not so fantastic as it may appear at first sight. The solar spectrum is a familiar picture. But how many know that it extends both ways far beyond the limitations of the visible spectrum and the wide range of the spectrum as registered by actinic power? Perchance that immeasurable something which actuates all, that is in all and through all, that is life, or the soul, bears some such relation to the known and measurable matter of the body as does the invisible spectrum to the visible.

But it may be argued that this is cold comfort. There is in this no individual personal life after death, nothing that would secure for the soul of man a larger future than that of the essence of any other organism, even the unicellular amœba. Here the fundamentals of physiology may have an indirect bearing if only by way of analogy. Our body is a congeries of myriad cells, each retaining its own sensibility and reactions in its degree, though all combine to make the sensibility of the whole. If this be so in the known world, why may we not infer a like condition in those limitless extensions of it which we can neither see nor handle, but which we may conceive are there? So that in these illimitable realms individuality may be maintained distinct, even though it be one with a greater whole.

These are speculations, attempts to suggest a rational explanation of a conception which has always been and must always remain a matter of faith. The soul-conception cannot be proved; it cannot be disproved. Belief in it has been and is now the mark of some of the most virile peoples of the earth; the fundamental belief of peoples who have sought to guide their steps by the light of intelligence. These same people have, by a similar process of intuition, arrived at secondary religious principles which are now shown to be biologically correct. Is there not, therefore, reasonable ground for concluding that the summation of these principles —the intuition of the Soul and of the Over-Soul as the Essence of all things, and of the indestructibility, the immortality of the soul of man—are equally true?

"It must be so,—
Else whence this pleasing hope, this fond desire,
This longing after immortality?
Or whence this secret dread and inward horror
Of falling into naught? Why shrinks the soul
Back on herself, and startles at destruction?
'Tis the divinity that stirs within us;
'Tis heaven itself that points out an hereafter,
And intimates eternity to man,
Eternity 'thou pleasing, dreadful thought.' "

# V. CONCLUSION

## V

### *Conclusion*

MANY years ago I saw in the window of a print shop in Oxford Street a picture that I can see now with my mind's eye. It was a drawing of a nice pink baby in nature's garb sitting on the bare earth in a wilderness of space. Beneath the picture was some such legend as this: What? Whence? Whither? It was a clever hint of the everlasting quest of man. Ever since he found himself—that is, since he began to think—man has been asking those three questions, and he has found many answers, and the answers have varied with his knowledge of his surroundings.

The answers he has gotten have been described, some as scientific, some as religious; as though there were some fundamental difference or division between the two. A very little reflection, however, will show that this is not so. Religion—every religion of every time and every clime—is the binding together as a coherent intelligible whole the knowledge or science that has been gained by men at that time. Through experience there has been gathered a store of facts, or supposed facts. Men of insight have welded these facts into the spirit of their people, and for these this is religion. There is then a common aim

in science and religion; each strives to tell man what he is, whence he has come, and whither he is going. Science is the setting forth of the bare facts known. Religion is the living articulate essence that makes these dry bones live.

Some forty years ago a physiologist made tests to find out the exact quantity of milk needed to secure the optimum growth of young rats. He then prepared an artificial milk containing the same proteins, fat, sugar, salts, and water, as the natural milk, in their exact proportions. This was made into a perfect emulsion, so that the artificial milk looked and tasted just like natural milk. The milk was fed to a litter of young rats. They took it with avidity. Soon, however, it was found that they ceased to grow, then lost weight, and showed all the signs of starvation. Now we know that this perfect imitation lacked an essential component of food, the precious vitamins, or the life-makers, and perhaps something more than this!

The science of to-day is very new; it has been swept clean of antiquity and the confused collections of the old-time astrologer, the alchemist, and the geographer. Religion is very old. It bears all the marks of its antiquity in its conventional forms. One man with a flash of intense insight welded scattered experiences into an amazing unity; the many have added to and altered the vision to bring the overwhelming into bearable relation to their

lives. The gold fresh-minted in the press of some indescribable experience has been clipped and sweated in the market, yet it has never ceased to be gold. Its pieces have borne varying superscriptions. Some coins have borne familiar forms of bird and beast and fish, and shown God everywhere. Some coins have glowed with a light that seemed to come from some unearthly source, the mere reflection of which was terrifying in its oppressive brilliance.

So man summed up his experiences. He found God everywhere and in himself, yet knew God to be beyond all and above all. Jesus, looking upon some peasant family at its meal, said God is our Father and we are His children.

"This having learned, thou hast attained the sum of wisdom . . .
A Paradise within thee."

I BELIEVE IN GOD . THE FATHER OF ALL MEN . AND MY FATHER . REVEALED IN THE LOVE OF LITTLE CHILDREN . THE LIVES OF ALL GOOD MEN . AND MOST TO US CHRISTIANS IN JESUS . OUR MASTER . IN WHOSE LIFE WE HAVE ASSURANCE OF HOPE

I BELIEVE IN THE EVER-PRESENT SPIRIT OF GOD . WORKING IN OUR HEARTS AND MINDS . LEADING US TO HIMSELF . TO A GREATER GLORY OF LIFE . AND TO A HOPE FULL OF IMMORTALITY . . . . .

I BELIEVE IN THE COMMUNION OF SOULS . THE FORGIVENESS OF SINS . IN GOD THE MOST MERCIFUL . AMEN.

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